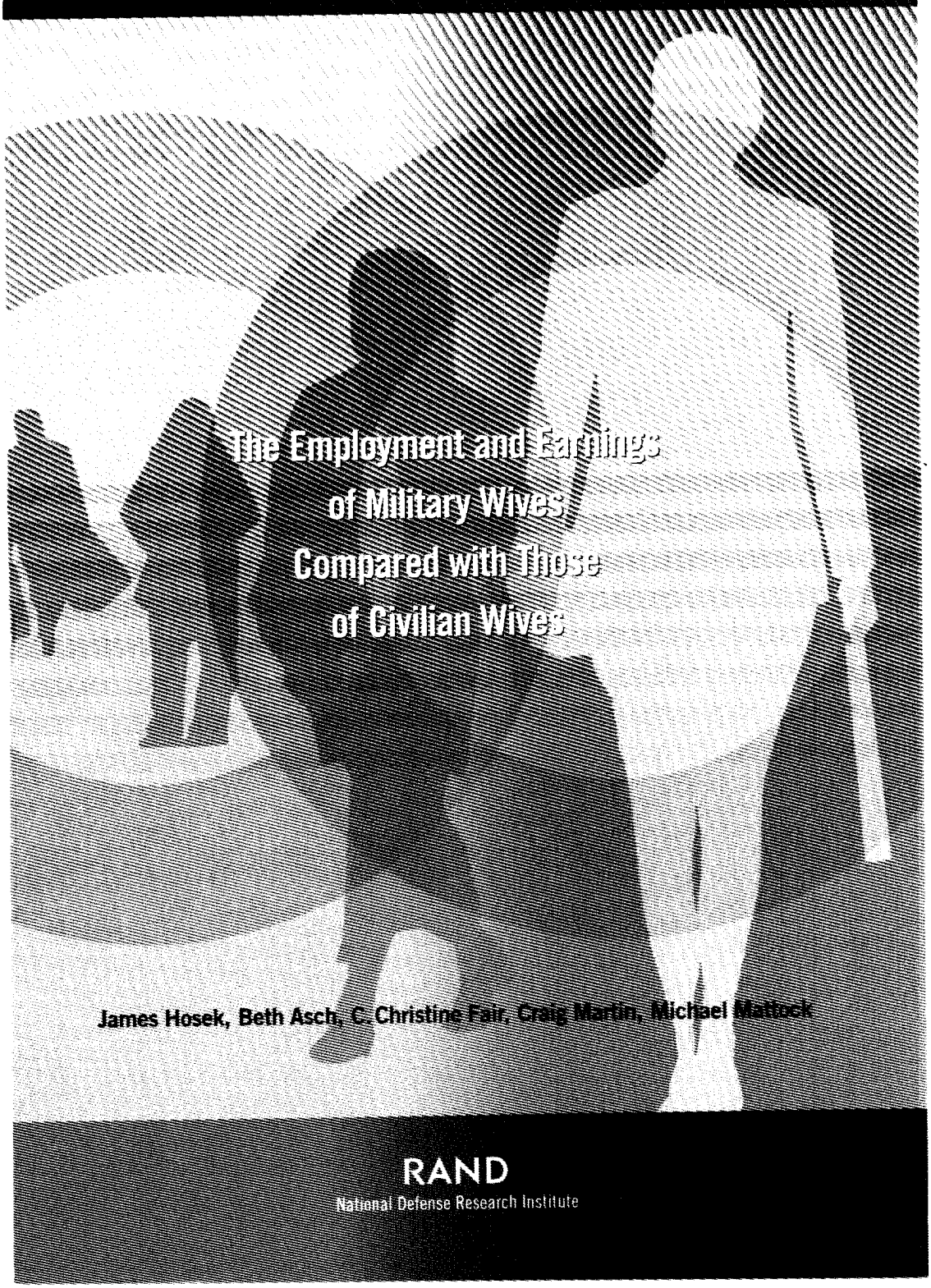
MARRIED to the MILITARY



The Employment and Earnings of Military Wives Compared with Those of Civilian Wives

James Hosek, Beth Asch, C. Christine Fair, Craig Martin, Michael Mattock

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Prepared for the Office of the Secretary of Defense

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PREFACE

We care about the labor market outcomes of military spouses because the all-volunteer force is a military of families. About one in seven active-duty members enters the military married, and by the eighth year of military service approximately three-quarters of the members are married and many also have children. Military duties, hardships, and risks affect not only the military member, but also the member's entire family. The emergence of the family as a prominent aspect of the all-volunteer force goes hand in hand with the remarkable increase in average duration of service that the volunteers have brought in comparison with a force containing drafted and draft-induced personnel. Among enlisted personnel, the group most affected by the draft, about one in eight of an entry cohort completed eight or more years of service, and under the all-volunteer force that percentage has roughly doubled. The volunteer force has become a reality and a success, and it has brought with it a responsibility to the military family.

Today, the information and data available to guide and support analyses of recruiting, retention, personnel quality, and personnel force management are better than ever. Yet for the most part—and certainly with some welcome exceptions—most data and analyses have focused on the military member. Studies of recruiting and retention commonly take the perspective of the member and have little if any information about the employment and earnings opportunities of the spouse and their effect on the decision to join or stay. Also, although there have been studies of quality-of-life aspects such as housing, health care, DoD dependents' schools, and family support programs, these studies primarily concern the coverage,

cost, access, and effectiveness of individual programs rather than the labor supply and wage of the wife and their role in retention as a family decision.

The present study is a step toward providing a fuller picture of the lives led by military spouses. We focus on a crucial dimension of those lives, namely, the spouse's contribution to family income. Family income is arguably the best broad indicator of the family's material well-being. Income is a key determinant of consumption and savings, and among most married couples today it is common for both to work. Moreover, the labor force participation of civilian wives rose steadily from the 1950s to the 1990s, and wives now contribute a large share of family income in many, if not most, families. These powerful trends led us to wonder whether the same trends applied to military wives. Have they been able to benefit from the improvement in women's labor market opportunities, or is there empirical reason to believe that in some way their role as military wives has impeded their ability to benefit? We knew that data limitations would not allow us to address that question with ideal precision, yet we realized we could take advantage of existing data to develop a fairly detailed portrait of the labor supply and wages of military wives. Our analysis purposely compares military wives with civilian wives: We wanted to identify differences and articulate prospective reasons for those differences. We wanted to see how military wives contribute to family income and to learn whether military wives' labor participation and wage trends lagged and deviated from those of civilian wives. If our work succeeds in lending a greater factual, quantitative basis to the role of military wives as members of military families, it will have met our hopes.

The research was undertaken for the 9th Quadrennial Review of Military Compensation (QRMC), whose purpose is to investigate the adequacy of the military compensation system and recommend improvements as needed. The Office of Special Projects and Research, Office of the Under Secretary of Defense for Personnel and Readiness, sponsored the research. The research was conducted in the Forces and Resources Policy Center at RAND's National Security Research Division, a federally funded research and development center sponsored by the Office of the Secretary of Defense, the Joint Staff, the unified commands, and the defense agencies.

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SUMMARY

The purpose of this report is to analyze the employment and earnings of military wives compared with those of civilian wives between 1987 and 1999. Today's military is a military of families. About half of active-duty members are married as they enter their fifth year of service, and about three-fourths are married as they enter their tenth year of service. Therefore, in supporting the service member, manpower policy must often also support the member's family. Family considerations are apparent in policies on housing, health care, child care, dependents' schools, and compensation for separation from family members. Many military spouses work in the labor force and contribute to their family's material well-being, yet at the same time they must accommodate the demands the military makes of the member in the form of training, drills, inspections, education, exercises, peacetime operations, and hostile deployment. Also, the member is periodically reassigned, and permanent change-of-station (PCS) moves generally require the working wife to leave one job and find another. Thus, this report assesses the labor supply and wage of the military wife, recognizing the wife's contribution to family earnings and realizing that the military's demands on the member also affect the wife.

The analysis is based on a sample of husband-and-wife families drawn from the 1988–2000 Current Population Survey March Supplement and containing retrospective information for the previous year. The sample has two subsamples: one for military families and one for civilian families. We weighted each subsample for each year to reflect the male age, education, and race/ethnicity composition of the active-duty force in that year. We focused on military wives

because there were not enough observations to study the husbands of female military members. Also, we converted all dollar amounts to year 2000 dollars. The weighting of the military subsample assured that it would represent the active-duty population, and the weighting of the civilian subsample assured that it would be comparable to the military subsample. As background to the analysis, we reviewed studies on military wives, economic theories of labor supply, assortative mating, investment in human capital, migration, and sociological literature on "greedy" institutions. We developed behavioral hypotheses from insight provided by the literature.

Over the 1987–1999 period, husband-and-wife family earnings totaled $51,115 on average for civilian families and $40,587 for military families, or $10,528 less. Civilian wife earnings averaged $15,884 compared with $10,241 for military wives. The difference in wife earnings, $5,643, accounted for more than half the reported difference in husband-and-wife family earnings. The earnings of military members might be understated in the data, so the role of wife earnings in understanding the difference between military and civilian family earnings could be even greater.

The earnings difference between military and civilian wives arises because of differences in labor supply and wage rate. We analyzed different aspects of the wife's labor supply: the probability that the wife worked in the year, the probability that she worked full-time (defined here as at least 35 weeks and at least 35 hours per week), the number of weeks worked, and the number of hours per week. We analyzed two wage measures: the weekly wage and the hourly wage. In the weekly wage analysis we estimated models for wives who worked full-time, wives who worked part-time, and all wives who worked. The hourly wage analysis controlled for the possibility that the wage estimates were affected by selection bias, i.e., bias arising from the likelihood that wives with a higher prospective market wage are more likely to enter the labor force, in which case observed wages would overstate the true wage structure.

We found that compared with civilian wives, military wives are less likely to work in a year; less likely to work full-time; have fewer weeks of work; and have similar, though slightly lower, hours of work per week. Together, these factors imply that military wives work fewer hours per year. We also found that their wages are lower, whether

measured by weekly wage or hourly wage. To be specific, when we made predictions from our regression estimates with the explanatory variables set to the average values for the military wife subsample, the predicted probability of work in a year was .82 for the civilian wife and .74 for the military wife. The probability of working full-time, given that the wife worked, was .59 for the civilian wife and .48 for the military wife. The civilian wife was predicted to work 40.9 weeks versus 37.6 weeks for the military wife. The weekly wage if the wife worked full-time was $308 for the civilian wife and $268 for the military wife.

Among the hypotheses we considered, several seemed especially helpful in explaining this differential pattern of outcomes for military wives. To begin, military wives are an increasingly self-selected population as the military career of her husband progresses. Many members marry as young junior officers or enlisted members, and a significant fraction of junior and early mid-career members leave the military. The decision to stay in, or leave, the military presumably takes into account the wife's career prospects and career aspirations as well as those of the member. Wives who believe their opportunities to be greater outside the military will influence the family's decision for the member to leave the military, other things equal. In particular, wives with a stronger interest in the labor market will tend to depart the military if they believe labor market opportunities are greater outside the military. Additional hypotheses suggest reasons why that might be the case.

One hypothesis is that the more frequent moves of the military family lead to a lower-wage equilibrium. Under this hypothesis, military wives know that they are likely to move frequently. In response, they are willing to accept jobs that offer a lower wage rather than use more of their remaining time at a location to find a higher-wage job. Employers also know that military wives are more likely to move. They offer positions conditioned on the expectation that the military wife will not be with the firm for a long period and that the military wife in effect faces a trade-off between searching longer for a higher wage versus starting to work, and earn, at a lower wage. A related hypothesis is that the military is demanding of the member's time, and the family's decision regarding the wife's labor supply takes these demands into account. The member must report when commanded to do so, and the member's schedule may have rigidities and uncer-

tainties that are more prominent than in many civilian jobs. Furthermore, the military may be demanding of the wife's time. Officers' wives and senior noncommissioned officer (NCO) wives are often expected to organize and participate in family support activities.

These hypotheses are consistent with our finding that the probability that the wife works in a year declines with age in the military, although it changes little with age in the civilian world. Furthermore, this probability declines more rapidly for military wives with a college education, most of whom are officers' wives. The decline may reflect the selective departure of families with wives who have a stronger interest in the labor market. It may also reflect the withdrawal of military wives from the labor market in order to take on service-related volunteer activities or personal nonwork activities. As the probability of work in a year declines, the probability of working full-time rises among those wives who remain in the labor force. This rise in full-time work is greater for military wives than for civilian wives. This indicates that wives with a weaker, non–full-time attachment to the labor force are the ones who tend to withdraw from it. Also, weeks of work rise with age for the military wife, given that she works—yet they rise faster for the civilian wife. We think this difference in the rise in weeks of work with age is related to the fact that military families move more frequently and longer distances than do civilian families. We estimate that the difference in frequency and distance of moves causes the working military wife to have 2.6 fewer weeks of work per year on average. Finally, the wage of the military wife is lower, as mentioned.

The results were not consistent with the hypothesis that military wives accumulate human capital more slowly than civilian wives because employers are reluctant to invest as much in military wives. This hypothesis predicts that the wage gap between civilian and military wives will grow with age, but we find that it does not. In particular, there is no statistical difference in the relationship of wife age to wage between military and civilian wives. The military wife's wage starts lower and stays lower. However, the results indicate that the civilian wife's wage is independent of husband age, whereas the military wife wage rises with husband age. The increase with husband age could reflect the selective departure of wives for service-oriented volunteer activities (or personal nonwork activities). Departures from the labor market would presumably be more likely among wives with

lower market wages, and if so, the wage of wives who remained in the labor force would tend to rise with husband age.

Military families are three times as likely as civilian families to have an out-of-county move in a year. About one-fourth of military families move out of county versus about one-twelfth of civilian families. Moreover, military families move longer distances, and longer moves entail a greater loss of the wife's weeks of work. But military families are more efficient movers in the sense that for a move of a given distance, the military wife loses fewer weeks of work per year. Nonetheless, the greater frequency and distance of moves combine into a larger expected loss of work for the military wife: 3.8 weeks for her versus 1.2 weeks for the civilian wife, a 2.6-week difference.

The effects of children on wife labor supply are largely similar for military and civilian families. The presence of children reduces the probability of work in a year, the probability of full-time work, and weeks of work. The reductions are greater if young children are present. Compared with that of the civilian wife, the reduction in military wife labor supply is somewhat greater in the presence of young children but somewhat smaller with older children.

Regarding location, it is often assumed that military families live in rural areas where the job opportunities for the wife are poor. We find fairly small differences in the location of civilian versus military families. The difference in location distributions appears to be that civilian families are more likely to be living in suburban areas, and military families are more likely to list their location as "missing." The latter probably reflects the fact that a military family may have a permanent address (e.g., for tax purposes) different from the family's current address (duty assignment). Contrary to common expectation, we also find little difference between the wage of military wives in urban, suburban, and rural areas. We think this is because military wives tend to work on or near base, and the local "micro-economy" is stabilized by a steady flow of funds for the base. In contrast, civilian wives in rural areas have a 28 percent lower wage than their suburban counterparts.

With respect to labor supply and wage over the business cycle, we find that a one-point increase in the unemployment rate from one year to the next has little effect on the probability of work in the year

but reduces the probability that the military wife works full-time. It also has small negative effects on her weeks worked and her weekly wage, although the wage effect is not statistically significant. In comparison, an increase in unemployment leads to a slight increase in the probability that the civilian wife worked during the year and the probability that she worked full-time, and an increase of about half a week of work. There is no change in her weekly wage given that she worked full-time. This pattern of response of the civilian wife is consistent with the traditional "added-worker" hypothesis whereby the wife, responding to her husband's loss of work or threat of loss of work, reacts by increasing her labor supply. The military wife, in contrast, does not appear to respond as an added worker but rather as a worker with a more permanent attachment to the labor force.

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ACRONYMS

CDC	Child Development Center
COLA	cost-of-living allowance
CPS	Current Population Survey
CQCO	Cost, Quality, and Child Outcomes
DITY	Do-It-Yourself Moves
DoD	Department of Defense
FCC	Family Child Care home
NCO	noncommissioned officer
OLS	ordinary least squares
PCS	permanent change-of-station
QRMC	Quadrennial Review of Military Compensation
RMC	regular military compensation

Chapter One

INTRODUCTION

The experience of military spouses has been the subject of increasing attention among researchers, policymakers, and those in the media. This attention stems from concern about the quality of life of military families and the implications of declining quality for military retention and readiness. Harrell (2001), for example, conducted extensive field interviews to document the stressful financial and sociological issues faced by Army junior enlisted wives. Our analysis complements such ethnographic studies. We provide quantitative information on the labor market outcomes of military wives, relying on a random, representative sample to do so. We are concerned with the extent to which military wives' earnings differ from those of comparable civilian wives, as well as parsing out the factors that help account for the differences. Our research is impersonal, yet it is statistically systematic. It provides a depth and quantitative focus difficult to attain in studies based on interviews, just as the latter can offer penetrating insights that might not be cogently captured in available quantitative data. Our findings suggest that in many ways the labor supply and wage outcomes of military wives have much in common with those of civilian wives. Still, we find evidence of systematic differences. Our discussion of theory, descriptive differences, and regression analyses forms our attempt to uncover and highlight those differences and to speculate about the reasons why they occur.

The retention of high-quality personnel is a perennial concern for defense manpower managers in the context of the all-volunteer force. Many studies have estimated the effect on retention of military compensation, bonuses, and environmental factors such as the civilian unemployment rate. None has examined the effect of family

compensation on retention behavior. Yet marriage rates among military members are quite high—even higher than in the civilian sector (Wardynski, 2000)—and the employment rate of military wives is higher than 70 percent (see Chapter Four). It therefore seems important to understand how military life affects family earnings, particularly spouse earnings, and—in future research—to understand how family earnings affect the member's decision to stay in or leave the military.

The lack of research on the effect of spouse earnings on retention is due to a lack of data. Regularly maintained databases on military members do not include information on either a spouse's current and future earnings or whether the member should stay in, or leave, the military. We are aware of only two studies of how military spouses influence military members' careers. While clearly an important step forward, those studies are only able to examine intentions to leave the military and attitudes toward the military and not actual retention decisions. In the late 1980s, Wood presented evidence that a soldier's intention to leave the Army is significantly affected by the spouse's likelihood of being unemployed (Wood, 1989, cited by Schwartz, Wood, and Griffeth, 1991). More recently, Gill and Haurin (1998) used data from a 1992 Department of Defense (DoD) survey and found that the military husband's satisfaction with the family's work-life situation has more weight than the wife's satisfaction in determining the military member's intentions to leave the military. While retention intentions are likely to be positively related to actual behavior, no estimates exist on how military spouses' labor market outcomes affect the actual decision to stay in the military. Furthermore, past studies of the relationship between enlistment intentions and enlistment behavior show a much weaker relationship between intentions and behavior among those farther away from the actual decision date than those close to it (Orvis, Sastry, and McDonald, 1996). Since the retention decision date only occurs periodically over the military career, the relationship between retention attitudes and actual behavior will only be strong for those near the retention decision.

Much of the research has focused instead on a more addressable question: namely, how do the labor force participation and earnings of military wives compare with those of their civilian counterparts (Wardynski, 2000; Payne, Warner, and Little, 1992; Grossman, 1981;

Schwartz, Wood, and Griffeth, 1991; Schwartz, 1990)? Our research focuses on this question as well.

There are a number of reasons why military spouses' labor force participation and earnings may differ from those of their civilian counterparts. First, frequent migration of military families through permanent change-of-station (PCS) moves may retard military wives' ability to accumulate experience, education, and job-specific human capital. Employers may either choose not to hire military wives or choose not to invest in them, as they are perceived as being migratory. Second, unlike their civilian counterparts who may move to optimize labor force opportunities, military wives are virtually always tied movers (i.e., their moves are dictated by their spouses' moves) and are not necessarily moving advantageously. Third, military bases may be in localities with low wages and limited employment opportunities for military wives. Fourth, the pattern of relatively frequent PCS moves may cause military wives to engage in less job search, resulting in a lower return to their human capital. The returns to search will also be lower if military installations are in low-wage areas with few high-wage jobs for highly educated military wives. Consequently, military wives may be induced to accept lower-wage jobs than if they were in major labor market areas. Fifth, military wives may be self-selected, placing a high priority on the military lifestyle, with its unique opportunities and limitations. Under the self-selection hypothesis, military wives might work less or earn less than civilian wives because they tend to have different tastes for work. Sixth, military wives may be responding to family-related policies. For instance, it may be less of a burden not to work if housing is subsidized at no cost to the family. Also, there may be some incentive to have children sooner (and perhaps to have more children) because babies may be delivered in military treatment facilities at low cost to the family and on-base child care may be available. Further, officer wives and senior noncommissioned officer (NCO) wives may be expected to devote time to the support and social cohesion of the wives and families of more junior unit

members (Harrell, 2001). These factors imply that military wives are likely to earn less than similar wives of civilians.[1]

Past studies have generally found support for these hypotheses. Payne, Warner, and Little (1992) used March 1985 Current Population Survey (CPS) data together with the 1985 DoD survey of military couples and found that weekly earnings are 5.4 percent lower for military wives than for civilian wives and that annual earnings are 18.4 percent lower, other factors held constant. Gill (1996) used the 1992 survey of military personnel and spouses and the 1992 wave of the National Longitudinal Survey of Youth to compare the earnings of military and civilian spouses age 27 to 35. He found that the annual earnings of military wives with 16 years of education are 57.5 percent of the earnings of civilian wives with 16 years of education. Military wives with 13 years of education earn 69.4 percent of the annual earnings of civilian wives with 13 years of education.

Much of the difference between military and civilian wives' annual earnings appears to be due to lower labor supply among military wives; Gill (1996) found smaller differences in weekly wages as did Payne, Warner, and Little (1992). That is, military wives supply fewer hours each year, either because they are less likely to be employed, because they work fewer weeks per year, or because they work fewer hours per week. More recently, Wardynski (2000) used CPS data for 1993, 1995, 1997, and 1999 and found that military wives are less likely to work full-time and that a higher percentage of military wives are not in the labor force, compared with civilian wives. Specifically, he found 8–13 percent lower employment rates among military wives, and 13–20 percent lower full-time employment rates. In terms of earnings among full-time workers, he found that military wives earn 20–37 percent less than civilian wives depending on education level.

Two studies examined how moving affects military spouse earnings relative to civilian spouse earnings. Consistent with the early analysis of Mincer and Ofek (1982), who found that career interruptions lower earnings, Gill, Haurin, and Phillips (1994) used the 1985 military

[1]Wives are "similar" in the sense that our analysis controls for the age and education of the wife and the age and education of her husband, as well as for race/ethnicity, children, and other factors described below.

couples data file and found that additional PCS moves reduced a military wife's weekly wage by 2.8 percent. Using the 1992 DoD survey of active-duty military personnel and their spouses, Wardynski (2000) found that moving is associated with lower military spouse earnings relative to military families who make fewer moves. However, he found that the difference in spouse earnings due to an additional move in the military is dominated by the difference due to being associated with different services. For example, being in the Army was associated with a 12.6 percent reduction in annual spouse earnings (compared with the Navy) while an additional move was only associated with a 2.1 percent reduction in spouse earnings. Wardynski attributed the service effect to differences in the geographic distribution of military installations across services. For example, he attributed the negative effect of being in the Army on spouse earnings to the concentration of Army bases in rural, low-wage areas.

While these other analytical efforts have contributed to our understanding of the labor force outcomes of military wives, there are specific areas where further analyses are warranted. For example, work to date has often used a particular year of data (Payne, Warner, and Little, 1992; Gill, 1996) or has focused on aggregate differences in outcomes and not the trends in outcomes over time (Wardynski, 2000). Other researchers (Grossman, 1981; Hayghe, 1986) have examined trends over time in labor force participation rates and unemployment among military and civilian wives using annual March CPS data. However, these studies used data from the 1970s and early 1980s, before the full extent of the changes noted in the text occurred. It is reasonable to hypothesize that the relationship between the labor market outcomes of military and civilian spouses may have changed in recent years. The labor market returns to college relative to high school have increased dramatically in recent decades, the labor force participation of married women has increased as well, and the size of the military has declined substantially because of the defense drawdown. Furthermore, the pace and type of military operations in which the military participates have changed since the end of the Cold War. Departing from Cold War patterns of a superpower standoff, the United States since engaged in a wide range of peacemaking, peacekeeping, humanitarian, disaster relief, border patrol, and nation-building missions. Army and Air Force members were

deployed more frequently in the 1990s than in the 1980s, and in every service the chance of being involved in an operation that involved imminent danger and hostile fire increased (Hosek and Totten, 1998). These changes may have altered the trend in spousal earnings, and the shift may differ for military spouses versus civilian spouses.

Another possible drawback of some earlier studies is that their descriptive analyses of their data did not take into consideration the fact that neither the military families nor civilian families in the CPS sample resemble the universe of military families generally, as will be discussed below. Use of the CPS in these analyses, without a weighting regime to control for such distributional differences, should be viewed with caution.

Perhaps the study closest in spirit to our own is the study by Wardynski (2000), which also uses CPS data over several years to estimate regressions of military and civilian spouses' labor market outcomes, controlling for other characteristics. Our study differs because we examine trends in addition to average differences in labor market outcomes. Furthermore, the Wardynski study includes weeks worked in the earnings regression equation without controlling for the fact that this variable is both right and left censored (at 0 and 52 weeks) and is jointly determined with earnings. Consequently, the study's estimates of the extent to which military wife earnings differ from civilian wife earnings may be biased.

The research presented in this report represents a departure from previous work in several ways. First, use of the CPS March Supplement data allows us to examine trends in spousal labor force outcomes from 1987 to 1999 rather than focusing on one year or the average across years. Our regression models, discussed below, permit us to examine differences in trends for both groups of wives. Second, while we make use of the CPS, we have re-weighted our samples of military families and civilian families so that the husbands in both are representative of the male active-duty population. This adjusts for major differences between the military and civilian family samples related to their age and education levels. For example, wives in the civilian sample are on average more than ten years older than are wives in the military sample. If we had not re-weighted the samples, civilian wives would tend to have higher wages simply because they

were older (wages generally rise with work experience, which rises with age). Third, we focus on both labor supply and wages to discern how much of the differences in military and civilian wives' annual earnings is due to differences in how much they are paid (i.e., wages) and how much they work (i.e., their labor supply). While some past studies have also examined labor supply outcomes such as the percentage of wives working full-time, none has attempted to systematically attribute differences in earnings to differences in pay versus differences in labor supply.

The specific questions we address include the following:

- How large a portion of husband-wife earnings come from the wife, and does this differ between military and civilian families?
- How much of the difference in earnings between military and civilian wives traces to the amount of labor supplied and how much to the wage rate?
- Have the trends in labor supplied and wages differed between military and civilian wives?
- How do specific factors affect these differences? Factors we consider include the age, education, and race/ethnicity of the wife and the husband; the presence, age structure, and number of children; the family's geographic location; whether the family has moved recently; cyclical economic conditions as reflected by the change in the state unemployment rate; and time trend.

In analyzing these questions, we have reviewed theory, formulated hypotheses, provided descriptive tabulations, and estimated regression models. To check the robustness of our findings, we have estimated related yet different models that provide a variety of views of labor supply and wages.

Chapter Two discusses what factors might lead to different labor supply and earnings outcomes for military versus civilian wives from a theoretical perspective. Chapter Three describes our methodology and data. In Chapters Four and Five, we present a descriptive comparison of labor supply and earnings outcomes and then discuss the findings from our regression analysis. In Chapter Six, we present our conclusions as well as caveats to the analysis. We also identify several areas for future research.

Chapter Two

THEORETICAL CONSIDERATIONS

This chapter describes the conceptual framework employed in this analysis. A number of approaches have been used to analyze family labor supply decisions (Killingsworth, 1983). We adopt the more traditional approach, which views marriage partners as behaving as a single unit and making joint decisions. This more common approach draws from Becker's theory of the allocation of time and his book *A Treatise on the Family* (1981). It also draws from his human capital framework (Becker, 1964).

An alternative approach would view the marriage partners as separate decisionmakers who bargain over scarce family resources (Manser and Brown, 1979; McElroy and Horney, 1981; Lundberg and Pollack, 1996). This latter approach has some advantages, especially when considering issues pertaining to whether to marry and whether to divorce. However, both approaches recognize that labor supply decisions are jointly made (though they differ with regard to how those decisions get made). We use the Becker approach because it is simpler and because we take a simple reduced-form approach in our empirical analysis. In addition to drawing from the economics literature, this chapter also explores some of the sociological literature on "greedy institutions" as it pertains to the military and military spouses' labor force decisions.

CONCEPTUAL FRAMEWORK

We focus on wives rather than both male and female spouses of military members. This simplification is motivated by the fact that military spouses are overwhelmingly female and by the fact that the most

dramatic change in labor supply over recent decades has occurred among wives.

Wife's Labor Supply

Following Becker (1976), we treat the household as the economic decisionmaking unit. Households are assumed to maximize utility by engaging in home production that requires inputs of time and goods. Goods must be purchased, and household members supply time to the labor market in order to earn income that can be used to purchase the goods. The decision about each spouse's time allocated to the labor market and time allocated to home production will be influenced by the spouses' relative productivity in the labor market and at home (see also Lundberg, 1988). Relative productivity reflects which spouse can produce more home-produced commodities for a given amount of inputs and time, and who can generate more earnings by working for pay for a given amount of inputs and time. The allocation of spouse time between home and work also depends on the price of the inputs into home production and the technology of home production. Changes in the market wage, the price of inputs, or the nature of technology may affect the spouses' time allocation. Time allocation also depends on personal preferences. For given home input prices and home production technology, a husband and wife can in effect iterate over various hypothetical combinations of their labor supply, weighing the benefits of greater earnings against the costs of forgone home production. These benefits and costs reflect the household's relative demand for time-intensive goods such as child care, home entertaining, or involvement in community or church activities, versus cash-intensive goods such as a large house, a new car, a family entertainment center, or expensive vacations. In this framework, a wife's labor supply decision is interdependent with that of the husband's labor supply decision. On the margin, a wife will enter the labor force if her market wage compensates the family for her lost home production as well as any fixed or variable costs of labor force participation, e.g., additional child care expenses.

The wife's reservation wage may be affected by a number of factors. First, a wife may have a higher reservation wage and be less likely to work if her husband is a high-earner. One notion is that the higher the husband's market wage relative to the wife's market wage, the

greater the demand for the wife's time in home production, assuming her time can substitute for his in-home production. The home demand for her time is higher because his time is more expensive in the sense that the family gives up more market income per unit of his time than her time. Another notion is that the marginal value to the family of another dollar of income declines as family income rises; if the husband is a high-earner, neither spouse has as strong an incentive to supply more labor to the market. However, this negative effect on labor supply could be offset if, as family income rises, the family demand for cash-intensive goods increases. For example, as its income rises, the family might prefer to dine in upscale restaurants rather than eat home-cooked food. Second, the presence of children in the household and, in particular, the age of the youngest child may affect the wife's reservation wage. The family may determine that there are few substitutes for the time a parent spends with a young child. If the wife's market wage is less than the husband's or if the wife is more efficient in producing child care, the family may decide to have the wife spend more time at home when there are young children present. Furthermore, if the wife were to enter the labor force or increase her hours of work, the additional costs of day care would have to be netted out of her wages. Thus, under the conditions mentioned, the presence of young children may be expected to raise the wife's reservation wage and reduce her net market wage. Children and day care may influence the wife's reservation wage in other ways as well. Day care hours may restrain the hours that she can work. If employers set a minimum number of hours of work on jobs that pay a higher wage, she may trade off higher wages for a job that provides more flexible hours or is nearer to the day care provider. (Schwartz [1990] describes such factors as reducing the wife's reservation wage.)

Becker's framework applies to military and civilian families. Differences in the families' situations or constraints could result in differences in military versus civilian wives' labor force participation, weeks, and hours of work. But what are those differences? Perhaps the main difference concerns the organizational commitment required of the military member. The member is expected to be ready and available for duty at all times. The member goes where and when the military orders, undertaking the assigned tasks and missions. For many members, this means periodic change-of-station moves,

participation in unit training and major exercises over days or weeks, assignment to unaccompanied tours (i.e., the member is not accompanied by dependents), and deployment in support of military operations in peace or war. These factors are not exclusive to the military. Many private-sector jobs have extensive responsibilities and offer little flexibility over the terms of work (e.g., hours, shifts, tasks). For instance, physicians, nurses, and repairmen are often on call, as are livestock farmers, restaurant staff, firefighters, and police, and there may be little leeway in the job demands placed on livestock farmers, teachers, and shift workers. But even if some civilian jobs have aspects for which there are counterparts in military positions, it seems reasonable to suggest that military positions tend to differ with regard to family moves; absences due to military training, assignment, or operation; and a strict chain-of-command hierarchy that the member must obey. When given an order, the military member has virtually no recourse for negotiating what is to be done and when. Compared with constraints attendant on many and perhaps most civilian jobs, the military member has more constraints as far as allocating time between work and home, choosing tasks, choosing the timing of activities, determining when and for how long to be deployed for duty, and determining when and where to move. Therefore, more of the time-urgent family tasks fall to the military wife. As a result, the value of the wife's home time may be higher for a military family than for an observationally equivalent civilian family. It is in the family's interest to maintain flexibility in the wife's schedule to handle exigencies, provide child care, deal with unexpected changes in the husband's schedule, shoulder extra work when her husband is away on temporary duty, and have the choice to be at home when he is at home.

The discussion suggests that military wives have a higher reservation wage for labor force participation and a higher demand for flexible employment, compared with similar civilian wives. Following the theory, we expect this to result in a lower labor force participation rate and fewer weeks of work per year for military wives versus civilian wives. Among wives who work, the impact on hours of work per week is not as clear. The discussion points to the value of flexibility in arranging hours of work, and flexibility may depend more on the particular job than on whether it is full-time or part-time. That is, part-time jobs may offer much the same flexibility as full-time jobs.

With respect to wage rate, there are two reasons to think the wage rate on jobs with more flexibility will be lower. It may be costly for the employer to allow flexibility; arrangements must be made to have staff on hand to provide services, work in production teams, and so forth. Also, workers may be willing to accept a lower wage in exchange for more flexibility.

Furthermore, the wife's weeks of work will be affected by family moves. Moves require considerable time to arrange and carry out, and moves often mean leaving one job and finding another (discussed below). If the member is busy with military duties, the spouse may take on more of the tasks required by the move. However, unless the member is physically absent or required to work unusually long hours (e.g., to prepare for an inspection), the member and spouse will both handle the move, as in civilian families.

Children are also an important factor in the wife's labor supply and earnings. Working wives with children, especially young children, demand child care services. Civilian wives rely on some combination of infant/toddler day care, preschool child care, and after-hours child care. Often, these services are obtained outside the home, and if there are two or more children there are likely to be two or more providers. In some cases, child care is provided in the home. Military wives have essentially the same choices. In addition, military installations commonly have a range of family services, including on-base child care facilities. These expand the child care options of many military families. Military child care is subsidized by the military and costs less than civilian child care. The availability and lower cost of military child care should increase military wives' labor force participation; i.e., it should lower the wife's reservation wage. In addition, because labor force participants are presumably interested in their wage net of child care cost, military wives might be willing to accept lower-wage jobs than civilian wives accept—and nevertheless have a comparable net wage. Yet, military child care is not available to many families that want it.

A number of military families live off base and might find on-base child care inconvenient. Although the military provision of child care (and family services) no doubt can help military wives who work, it is not clear how large an advantage it provides to military families who do not live near a base. As mentioned below, the military child care

system only satisfies 58 percent of the assessed need (Office of Family Policy, 2000). Also, some families may not find suitable housing near a base, and other families may live farther from a base in order to be closer to the spouse's job, thereby reducing her commuting time.

Finally, the theory of labor supply also recognizes that finding a partner to marry is a selective process. Becker's (1973, 1974) theory of assortative mating argues that the equilibrium in the marriage market is characterized by a matching of partners with similar potential earnings power. An implication of this theory is that partners will tend to have the same level of education. Thus, the theory of labor supply by itself suggests that husbands with high education are likely to earn more, which can increase the wife's reservation wage and make her less likely to participate in the labor force. But through assortative mating, the high-education husband is likely to be married to a high-education wife who also has high earnings potential. The latter may induce her to enter the labor market as well, irrespective of her husband's high earnings.

Human Capital Accumulation

According to human capital theory (Becker, 1964; Mincer, 1974), education and experience shape a person's age–earnings profile. If a person expects additional education to increase future earnings, there is an incentive to invest in education. Assuming expectations are fulfilled, earnings will be higher after the investment. Similarly, experience can add to human capital and make a person more productive. Since the wage returns to further investment in human capital depend on the number of years remaining in one's working life, and since past investments in human capital depreciate, wage tends to rise at a decreasing rate with age. Wage often reaches its maximum value before the end of working life.

Military wives will have lower age–earnings profiles if they accumulate less human capital on the job. The theory implies that the individual bears the cost of investments in general human capital, i.e., capital equally valued by any employer. Assuming military wives have similar total career length horizons to those of civilian wives, there should be little difference in the incentive to accumulate general human capital for that reason. However, if military wives change

residence and jobs more often because of change-of-station moves, they may devote cumulatively less time to investment in general human capital. If so, military wives' wages should not rise as fast with age as civilian wives' wages.

Further, the theory implies that the worker and the employer share the cost of investment in human capital that is specific to a firm. This capital includes knowledge of the firm's products, clients, policies and procedures, product production, and relative capabilities of coworkers. But military wives and their employers will recognize that change-of-station moves curtail the returns to firm-specific investments, and therefore military wives are likely to acquire less firm-specific capital than are comparable civilian wives. As with general capital, a lower level of firm-specific capital will result in a lower, less steep age–earnings profile. In addition, this may affect labor supply: Lower market wages (at any age) are expected to reduce labor force participation and may reduce weeks and hours of work. Schwartz, Wood, and Griffeth (1991) found that military wives' wages rise at a decreasing rate with age.

Migration and Permanent Change-of-Station Moves

Military families move every few years. Consequently, military wives are easily identified as the "tied mover." In contrast, civilian wives may or may not be tied movers. As a result of the military wife being a tied mover, there is less reason to expect that a move will improve her employment and earnings opportunities, compared with those of a migrating civilian wife. Some studies have found migration to have an adverse effect on civilian wives' market wages (Mincer and Ofek, 1982), and the impact on military wives' wages on average could be more adverse because the military wife is a tied mover.

Moves directed by the military are more likely than voluntary family moves to interrupt work and reduce the amount of labor supplied. Frequent job interruptions may retard the mover's ability to accumulate general and specific human capital and may slow the mover's job advancement (Rosenfeld, 1978; Payne, Warner, and Little, 1992). In addition, moves may operate to reduce the returns to job search by curtailing the expected tenure of a job. As a result, the job search reservation wage would be lower, as would the expected wage given an acceptable offer. The frequent mover may thus settle for lower-

quality jobs that present fewer opportunities for training or may be poorly matched with the mover's education and experience.

Not all moves are the same. Our data identify whether a family's move was local, intrastate, out of state, and so forth, but not whether a military family move was a change-of-station move. Short-distance moves may indicate a change of residence rather than a job change. Longer moves are more likely to involve both a residence change and job change. For military families, longer moves are highly likely to be change-of-station moves.

Related to frequent moves is the geographic location to which the family moves. Local market demand is an important determinant in market wage. This issue is salient for military families as some bases are far from large population centers. For bases in relatively isolated areas, e.g., those not part of a metropolitan area or its fringe, the local demand for labor may be low compared with labor supply. But even if a base is in a rural area, its presence can be expected to increase the demand for goods and services supplied locally, and the supply of labor. In the micro-economy around a base, labor market opportunities might not be that different from a suburban or urban area. In addition, labor demand may differ by skill. The supply of labor added by officers' wives, who often have a college education, may be high relative to the local demand for college-educated workers. In this case, the wage of officers' wives would be relatively low compared with that of comparable civilian wives whose employment was not on or around a military base. Overall, military wives relocating to such areas may have lower reservation wages and may be motivated to accept lower-quality jobs or jobs that are less concordant with their background and training than military wives locating to more urban and populated areas. However, relative to civilian wives in similar areas who also face constrained job opportunities and who have similar characteristics, military wives may actually be better off, given their access to military-provided goods and services on base, such as the commissary and health care.

In addition to possible wage effects, living near a military installation may affect the sensitivity of employment to the business cycle. If military installations tend to be prominent parts of the local economy, employment near the installation may be less affected by variations in business activity. The funding for the installation and the wages

paid to military personnel might be less likely to increase and decrease over the business cycle than the revenues of private enterprises. As a result, there could be steadier employment around installations, e.g., less change in response to changes in the state-level unemployment rate.

"Greedy Institutions"

The literature on "greedy institutions" suggests factors that may condition military wives' labor supply decisions (see Coser, 1974; Segal, 1988; and discussions in Schwartz, 1990; Payne, Warner, and Little, 1992; Wardynski, 2000). This literature argues that military life imposes particular demands on military wives and that these demands adversely influence military wives' labor force allocations and earnings. The factors identified in this literature in many ways parallel our discussion of the lack of flexibility in military members' work schedules compared with those of civilian husbands. In addition, the literature points to the military's expectation that military wives, especially officers' wives, volunteer their services for the good of the military community. However, the literature places less emphasis on the role military family benefits may have in influencing the wife's labor supply. The military may provide subsidized housing, child care, and recreational facilities, and it does provide low-cost family health care. Several of these benefits, though not necessarily subsidized child care, may also operate to reduce the wife's labor supply.

When armed services members have irregular duty hours, the coordination costs for running a household are higher. Harrell (2000) describes the uncertainty in military husbands' work schedules. Such unpredictability could frustrate military wives' labor supply—particularly if children are involved. Wives may need to be flexible in their decisions to allocate labor across domestic and labor force production to accommodate the needs of their children in the face of husbands' erratic availability for household obligations. While such day-to-day uncertainty influences a military mother's decision to enter the labor force, it seems less plausible that increased coordination costs typically have as strong an influence on military wives without children. Further, the husband's irregular or unpredictable schedule may induce the wife to seek employment with a flexible schedule and, as noted, perhaps a lower wage rate.

Another suggested factor in wives' labor supply is long deployment. However, unlike day-to-day uncertainties that contribute to increased coordination costs of the household, long deployments create a kind of week-to-week *certainty* for the wife while the husband is away. The wife may know how long the husband will be gone. For instance, Navy vessels are planned to be at sea for six months, while deployments in the Army and Marine Corps are typically shorter but less certain in length. Household production is the wife's responsibility while the husband is away, and it is unclear whether a long deployment would adversely influence a wife's decision to be in the labor force or affect her labor supply intensity. Military wives in families with no children seem least likely to be affected by the husband's deployment. But even for families with children, the husband's deployment may mean the wife gains more control over her schedule (she does not have to coordinate with her husband's schedule) while increasing her home workload.

Finally, deployments may also create uncertainty for the wife about her husband's safety, which can induce stress and anxiety. Family support programs are meant to help spouses cope with this uncertainty by providing social support, offering access to counseling, conveying information about the unit's activities, and maintaining periodic, direct communication between member and spouse by telephone or E-mail. Officers' wives and senior enlisted wives are often called upon to organize family support activities, e.g., get-togethers and "telephone trees" to relay information, and there is an expectation, or desire, that the wife participate (Wardynski, 2000; Harrell, 2001). Moreover, Harrell (2001) reports that the wife's participation in family support activities is considered in Army officer evaluation reports. Her participation may reduce her market labor supply.

In summary, the literature on greedy institutions suggests the following:

- Because of the increased coordination costs arising from day-to-day uncertainty, we expect military wives to have a lower labor supply intensity. (The institution is "greedy" to control the time, location, and effort of the husband.)

- The impact on wages may be negative. The wife may trade off a higher wage for more flexibility.
- Although not emphasized in the greedy-institution literature, family-oriented military benefits may also reduce the wife's labor supply.
- These three effects—increased coordination costs, willingness to trade off wage for flexibility, and family-oriented military benefits—may have a stronger negative effect on the wife's labor supply in military families with children.
- Officer and senior enlisted wives who accept responsibility to organize family support activities may have a lower likelihood of being in the labor force and may supply less labor.

Personal Taste

Personal taste can affect wives' labor force participation and labor supply decisions. Military wives presumably had some idea of the benefits and costs of military life before agreeing to marry into the military or before their husbands entered the military. Wives who do not have some level of personal taste for the military lifestyle and for the role of the military in providing national security would presumably not have married a member of the armed forces. Although the regression analysis controls for observable characteristics of military and civilian spouses, it does not control for unobserved factors that may influence a spouse's decision to marry a member of the armed services and adopt the military life. Differences in labor force outcomes between military and civilian wives may be related to these unobserved characteristics. For example, military wives may have lower earnings than their civilian counterparts because military wives have unobserved characteristics that tend to depress their earnings. These characteristics might include a willingness to live in remote areas, to forgo personal opportunity and gain, or to rear a family within the support structure provided by the military. Thus, the comparisons of labor force outcomes do not necessarily indicate how the welfare of military spouses compares with that of their civilian counterparts.

But even though personal taste may differ among military and civilian wives, taste may not be the whole story. Taste aside, the factors

we have identified—home production, market wage, labor force participation costs, human capital accumulation, tied migration, institutional constraints and incentives—may systematically affect labor and earnings outcomes of military versus civilian wives. We elaborate these ideas into empirical hypotheses in Chapter Three, after discussing the data and models we use in our analysis.

Chapter Three

DATA, METHODOLOGY, AND EMPIRICAL HYPOTHESES

DATA

The data were drawn from the 1988–2000 Current Population Survey March Supplement. The March Supplement contains information on labor market outcomes in the previous calendar year, i.e., for years 1987–1999. We extracted samples of husband-and-wife families, identifying whether or not the husband was in the military. We refer to the sample of husband-and-wife families where the husband was in the military as the military sample, and we refer to the sample where the husband was not in the military as the civilian sample.

The CPS is designed to be representative of the national population. For our research, however, we wanted the military sample to be representative of the active-duty male population. Also, we wanted the civilian sample to be comparable to that population. We therefore re-weighted the samples. We derived weights from a Defense Manpower Data Center file for each year of our data. The weights are such that our re-weighted military sample is representative of the active-duty male population with respect to education, age, and race/ethnicity. Similarly, our re-weighted civilian sample is also representative of the active-duty male population. Appendix A describes the data more fully. Appendix B presents means from the re-weighted sample and the originally weighted sample. In our regression analysis, we have used the weights of the re-weighted data.

We augmented the CPS data from the Bureau of Labor Statistics on state-level annual unemployment rate and annual inflation. Also, all

dollar amounts were converted to year 2000 dollars using the national seasonally adjusted consumer price index.

Unless stated otherwise, definitions used throughout this analysis include the following:

Worked: At least one week of work in the previous year

Worked full-time: At least 35 usual hours of work per week and at least 35 weeks worked

Worked part-time: Worked but not full-time

Weeks worked: Weeks worked during the year

Weekly earnings: Annual earnings divided by weeks worked

Hourly wage: Annual earnings divided by annual hours, the product of weeks worked and usual hours per week.

EMPIRICAL METHODS

Our empirical approach uses tabulations of the re-weighted military and civilian samples for a descriptive analysis. We also estimate a set of regression models as described below.

Descriptive Analysis

The descriptive analysis provides an overview of differences in spousal earnings among military and civilian families[1] followed by a summary of military and civilian family characteristics. Variation in family earnings may be decomposed into differences in husband earnings and in wife earnings. The difference between civilian and military husband earnings has been explored elsewhere (Hosek and Sharp, 2001; Asch and Hosek, 1999; Asch, Hosek, and Warner, 2001).[2]

[1]We present total spousal earnings, not total family income. Total family income includes total spousal earnings, children's earnings, asset income, and transfer income. In our sample, average total spousal earnings nearly equal average total family earnings (see Appendix B).

[2]In the CPS, earnings are self-reported. In the cited studies, military compensation includes basic pay, subsistence and housing allowances, and the implicit tax advan-

In this effort, we focus on the differences in family earnings that arise from differences in wife earnings exclusive of benefits (i.e., wage income only).

Differences in wife earnings occur because of differences in labor supply and wage. Human capital theory predicts that military wives may have less work experience or lower returns to their human capital. To examine these differences, we present descriptive findings separately for high school and college graduates. We look at the following outcomes for military and civilian wives:

- Percent worked in year
- Percent worked full-time
- Usual hours worked per week
- Weeks worked
- Weekly earnings

As discussed, migration is expected to affect labor supply and wage disproportionately for military wives because frequent moves diminish the returns to human capital for the wife and her employer, and the moves may be to areas with lower wages or fewer job opportunities. To explore the impact of migration, we also look at the number of weeks worked and weekly wages by migration status and distance of migration.

Regression Models

We estimate regression models for the wife:

- Probability worked during the year (probit)

tage due to the non-taxability of the allowances. This measure of military compensation excludes special and incentive pays, miscellaneous allowances, and cost-of-living allowances (COLAs). Also, it excludes the implicit value of military health benefits and retirements. Still, the studies show that military compensation typically exceeds average private-sector compensation, controlling for age, education, occupational area, gender, and race/ethnicity. Given that the military competes in the labor force for its personnel, a higher-level military pay appears to be required to obtain the quality of personnel sought by the military and to compensate for the regimen and dangers of military life.

- Probability worked full-time (probit)
- Weeks worked (double-truncated tobit, 0 < weeks worked ≤ 52)
- Weekly wage (ordinary least squares)
- Hourly wage (estimated jointly with probability worked to correct for selectivity bias[3])

With the exception of the selectivity-corrected hourly wage model, we estimate models with the same specification for each outcome. In general, the specification can be described as follows:

$$y_i = \beta Z_i + D_m(\delta Z_i) + \varepsilon_i$$

Here, Z is a vector of explanatory variables for wife i, including a constant term. The β coefficients represent the effects of the variables for civilian wives, D_m is a dummy variable indicating a military wife, and the δ coefficients indicate the extent to which military wives' coefficients *differ from* those of the civilian wives. For the selectivity-corrected model, we delete certain variables from the hourly-wage equation (husband variables, child variables).

The explanatory variables in Z include

- time trend, which allows for secular changes in the wage structure or in the institutions and attitudes affecting the women's labor supply

[3]In the economic model of labor force participation, participation is a function of the difference between the market wage and the reservation wage. High reservation wages require high market wages in order for participation to occur. Furthermore, the market wage is observed only when participation has occurred. As a result, observations on the market wage are censored. An implication of this is that the ordinary wage regression might over-predict the expected wage of a person who has chosen not to participate in the labor market. Heckman (1974) devised a procedure to correct for the selectivity bias in the ordinary wage regression. In our implementation of Heckman's model, we identify the selection effect by including the husband and children variables in the equation for the probability that the wife worked in the year, and excluding these variables from the wage equation. The husband variables are his age, education, and race/ethnicity. The children variables are the presence of children under age 18, the presence of children under age 6, and the number of children.

- economic activity, indicated by the annual change in the state-level unemployment rate
- variables related to the wife's reservation wage and coordination costs (e.g., the number and age categories of children) and the husband's age, education, and race/ethnicity,[4] which proxy his wage level
- variables related to the wife's human capital and the returns to it (e.g., her age, education, and race/ethnicity)
- variables related to whether the family has moved recently and, if so, how far
- whether the wife is a federal employee—this variable is not used in the equation for the probability that the wife worked during the year
- whether the family resides in an urban, suburban, or rural area, indicating the extent or density of the local labor market
- regional dummies, controlling for persistent differences in regional attitudes and cost of living

EMPIRICAL HYPOTHESES

We summarize the empirical hypotheses in Table 3.1. The table presents hypotheses for civilian wives and hypotheses for how the behavior of military wives may differ from that of civilian wives. We use the ⊗ symbol in the table to represent the differ-from concept.

[4]Race/ethnicity indicators may also reflect differences in opportunities, attitudes, and the effects of labor market discrimination.

Table 3.1

Empirical Hypotheses

Variable	Group	Hypothesis
Time trend	Civilian	No explicit prediction from the theories discussed; national trends show a rising labor force participation rate for women, modest real wage growth for women with high school education, and stronger wage growth for women with college education.
	⊗ Military	Trends should be similar for military wives as they too work in the civilian labor market. Trends could differ if the increase in military operations other than war led to rising reservation wage for wife or if access to, and cost of, child care changed differentially for military wives.
Unemployment rate	Civilian	Cyclical rise in unemployment should decrease the employment probability, weeks employed, probability of being employed full-time. Depending on who is dis-employed, the wage among workers might increase when unemployment rises.
	⊗ Military	Smaller effects if military wives tend to hold jobs, such as civil service jobs, around military installations and if the level of activity and payroll at the installation is less affected by economic upturn or downturn.
Wife's wage	Civilian	Wage should be higher and rise more rapidly for higher levels of education. This reflects investment in human capital through education and on-the-job training and experience. It also reflects a selection process whereby high ability reduces the cost of acquiring human capital and induces greater investment. Further, the wage is observed only if the wife works, and the probability of working depends on the difference between the market wage and the reservation wage. Thus, the observed market wage may exaggerate the true underlying wage structure because higher-wage women will be drawn into the workforce. We correct for this selectivity bias. Also, we expect higher wage to lead to higher labor supply (higher probability of working, working full-time, and weeks of work).

Table 3.1—continued

Variable	Group	Hypothesis
	⊗ Military	The same factors are at work, but because of frequent moves military wives may acquire human capital at a slower rate. Therefore, the rate of increase in wage with age should be slower than for civilian wives. Also, military wives might adapt to their husband's schedule by holding jobs that have more flexible hours or can be started and ended at low cost. These factors would lead to a lower initial wage as well as slower wage growth. (This is separate from the hypothesis that military wives face poor job prospects around military bases, which may be in isolated areas.) The same selectivity comment as above applies.
Children	Civilian	The presence and number of children, especially young children, should increase the reservation wage and decrease labor supply. A higher reservation wage should lead to a higher wage conditional on being employed.
	⊗ Military	Competing hypotheses. Constraints on husband's time and higher costs of coordinating family activity raise the wife's reservation wage, reinforcing the effects above. But wives may be inclined to seek jobs with flexible hours and be willing to accept a job with a lower wage. Also, some wives may use on-base child care, which is subsidized. A desire for flexible jobs and a use of on-base child care should reduce the reservation wage and increase the employment probability, weeks employed, and probability of being employed full-time and reduce the wage conditional on employment.

Table 3.1—continued

Variable	Group	Hypothesis
Husband's wage (proxied by age and education)	Civilian	Husband's wage is assumed to rise with his age and to rise more rapidly the higher his education. As his wage rises, family income rises and the demand for the wife's home time may increase, which would cause her reservation wage to increase. This should decrease her employment probability, weeks employed, and probability of being employed full-time, and increase her wage rate conditional on employment. However, because of assortative mating, the husband's education and wife's education are likely to be quite similar. Wives with high education have high earnings potential and are likely to have high labor supply and wage.
	⊗ Military	Effects of the military husband's age and education may differ if his wage growth is faster (or slower) than wage growth of the civilian husband. If wage patterns are similar, no differential effects on the wife's labor supply and wage are expected. If senior officers' wives are expected to volunteer their time, their labor supply could decline as the husband's age rises. The wage of those wives who are employed should be higher.
Migration	Civilian	Short moves may be for the convenience of residence change but not job change, or for a better job within the local labor market. Longer moves require change of residence and job, and from the wife's perspective the move may or may not be tied. Short moves should have little effect on the wife's labor supply and wage. Long moves may reduce the probability of employment, weeks of work, and probability of full-time employment. Depending on whether the move is tied, the wife's wage might also be reduced.

Table 3.1—continued

Variable	Group	Hypothesis
	⊗ Military	Military moves occur at the behest of the service and may require the military member to report by a certain date. Also, military moving policy enables members to capture some of the cost saving from moving themselves, and the saving is likely to be greater the faster the move. The impact of a long move on labor supply should therefore tend to be less for a military wife. However, since the military wife is always a tied mover, the impact on her wage should be more negative (or less positive).
Federal employee	Civilian	No particular hypothesis. Federal jobs are paid according to a published wage and salary schedule that differs somewhat by locale.
	⊗ Military	If the federal jobs held by military wives have on average a higher (lower) pay grade, the effect of this variable on the wife's wage will be positive (negative).
Urbanity, region	Civilian	Variables used to control for possible persistent differences in employment conditions and wage structure that depend on location. If rural areas are characterized by poor job opportunities, the wife's labor supply and wage should be lower, other things equal. If so, and if military families tend to live in rural (or less urban) areas, this would help account for differences in the earnings of military versus civilian wives.
	⊗ Military	If a micro-economy develops because of the presence of a base, military wives in rural areas may have better job opportunities and wages than civilian wives in rural areas have.

NOTE: "Civilian" refers to civilian wives, and "⊗ Military" refers to the hypothesized difference for military wives relative to civilian wives.

Chapter Four

DESCRIPTIVE RESULTS

Our descriptive findings provide an overview of differences in family earnings, wives' earnings, and wives' labor force participation intensity. The regression analysis in the next chapter permits relationships to be examined under controlled conditions and identifies the role of particular variables. This chapter identifies significant differences in wives' earnings between civilian and military families and identifies major sources for this variation.

The figures and tabulations below are based on the re-weighted samples, which are representative of the male active-duty population.[1]

HUSBAND-AND-WIFE EARNINGS

Earnings include wage and salary earnings plus other labor-related earnings (such as from occasional work). Wage and salary earnings account for the vast majority of husband-and-wife earnings. Also, husband-and-wife earnings account for nearly all the family's earnings; earnings from other family members such as teenagers account for very little (see Table B.1 in Appendix B). Figure 4.1 shows the average sum of husband-and-wife earnings over time for military and civilian families. Since the average sum is meant to provide an overall view of military/civilian family differences, it includes wives

[1] In the next chapter, we present some predictions that reflect the difference between the average characteristics of military families and civilian families, where the latter are representative of the national population of husband-and-wife families. This chapter compares military and civilian families, both of which are weighted to reflect the active-duty population.

with positive earnings as well as wives with zero earnings. Virtually all husbands had positive earnings. Over the period 1987 to 1999, husband-and-wife earnings averaged $51,115 for civilian families and $40,587 for military families, or $10,528 less.[2] The minimum difference of $6,271 occurred in 1993, following the national recession, and the maximum of $13,646 came in 1999, as civilian wages rose fast near the end of the boom. While Figure 4.1 suggests that there may be some recent widening, the family earnings difference has remained largely stable over most of this period.[3]

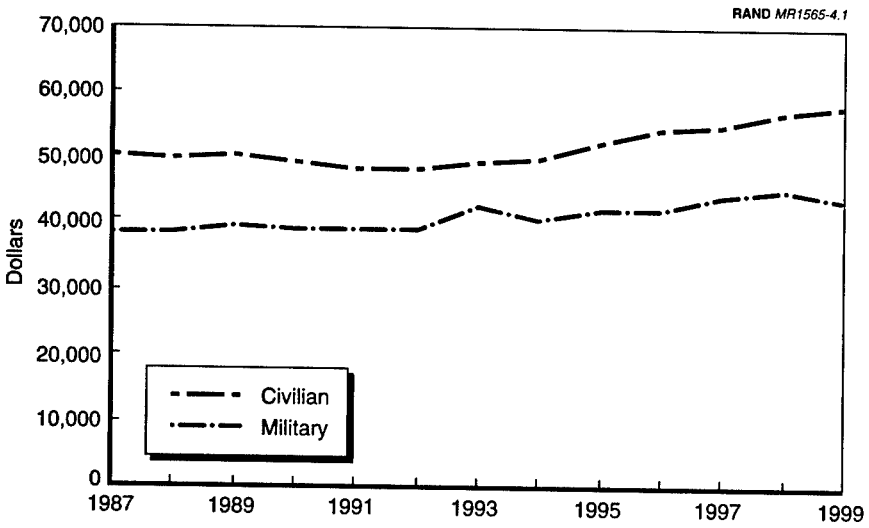

Figure 4.1—Average Earnings of Husband and Wife

[2]We have placed both re-weighted and originally weighted summary statistics for family characteristics in Table B.1 in Appendix B.

[3]Our 13 years of data contain about 448 military families per year on average. Thus, some year-to-year fluctuation in military spousal earnings may be attributable to noise and should be viewed with caution. This caveat holds for all descriptive findings in this chapter and is particularly salient when we present results by educational attainment and migration status that have even fewer military families per year.

WIFE'S EARNINGS

To decompose the difference in family earnings, we examined wife annual earnings (Figure 4.2). In keeping with Figure 4.1, Figure 4.2 shows average earnings over all wives, not only those who worked. From 1987 to 1999, civilian wife earnings averaged $15,884 and military wife earnings averaged $10,241. The difference in wives' average earnings was $5,643, roughly half the $10,528 difference in civilian and military husband-and-wife earnings.

The portion of the family earnings difference attributable to husbands is $5,000–$6,000. The true difference between husband earnings may be less, however. Possibly, self-reported military earnings in the CPS excludes the implicit tax advantage and makes no allowance for health care benefits provided by the military (see footnote 2 in Chapter Three). Military members receive a valuable health care benefit, for which they pay no premium. In contrast, civilians covered by employer-provided health care benefits often pay a premium for that coverage. In related work using Joint Uniform Military Pay System data, we computed an average tax advantage in 1999 of about

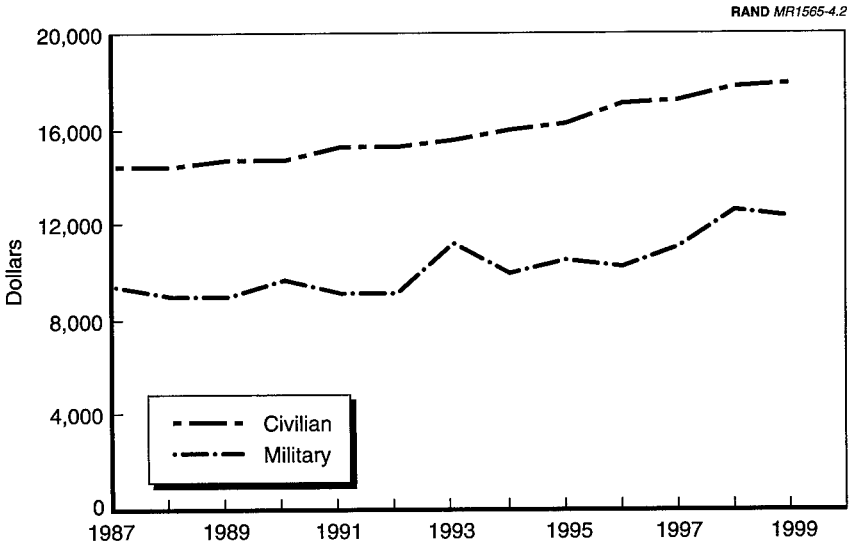

Figure 4.2—Average Earnings of Wife

$1,700 for enlisted personnel and $3,900 for officers (Asch, Hosek, and Martin, 2002). Assuming officers comprise about one-fifth of active-duty personnel, the overall average tax advantage is about .8($1,700) + .2($3,900) = $2,140. Some allowance for military health care benefits could close much of the remaining gap. This possibility places all the more emphasis on understanding the differences in wife earnings as a key to understanding the difference in civilian versus military family earnings.

Differences in civilian and military wife earnings can arise from differences in labor supply and wages. We next present results separately for wives who are high school and college graduates for the following outcomes:

- The likelihood of working
- The likelihood of working full-time, conditional on working (we define full-time as 35 or more weeks per year and 35 or more hours per week)
- Hours worked per week for all working wives
- Weeks worked per year for all working wives
- Weekly earnings for wives working full-time (by our definition)

WORKED IN YEAR

Figure 4.3 shows the fraction of civilian and military wives who worked at least one week in the year. For clarity, we use a scale from 0.5 to 1.0. On average, 85 percent of military college wives had some employment during the year, compared with 93 percent for civilian college wives. Also, 81 percent of military high school wives had some employment during the years, versus 90 percent of civilian high school wives. While there were some fluctuations, there was no obvious change over 1987–1999 for either group.

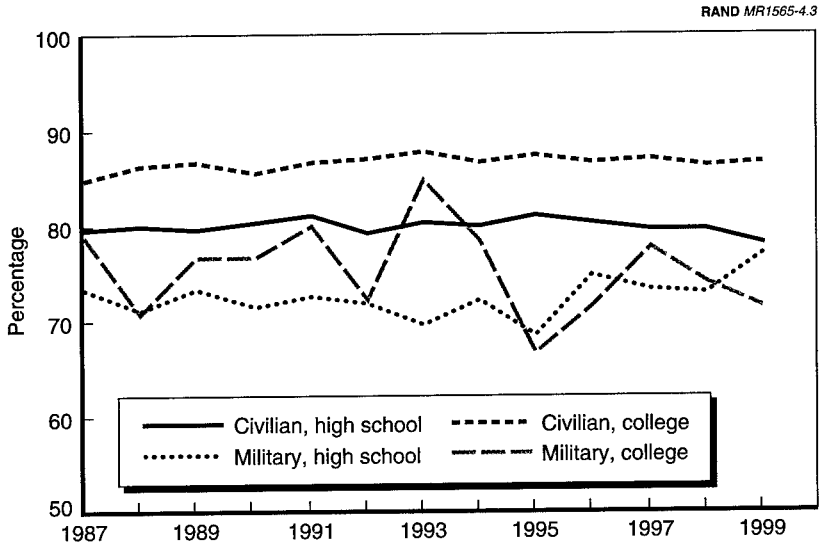

Figure 4.3—Percentage of Wives Who Worked in Year

WORKED FULL-TIME

Among working wives, military wives with either a high school diploma or a college degree are less likely than their civilian counterparts to work full-time. Among high school graduates (Figure 4.4), on average 62 percent of the civilian wives were working full-time, as were 49 percent of military wives. The respective figures for wives with college degrees were 70 percent for civilian wives and 56 percent for military wives. While there was little growth in the fraction of civilian wives working full-time, there was some apparent growth in the fraction of military high school wives working full-time at the end of the 1990s.

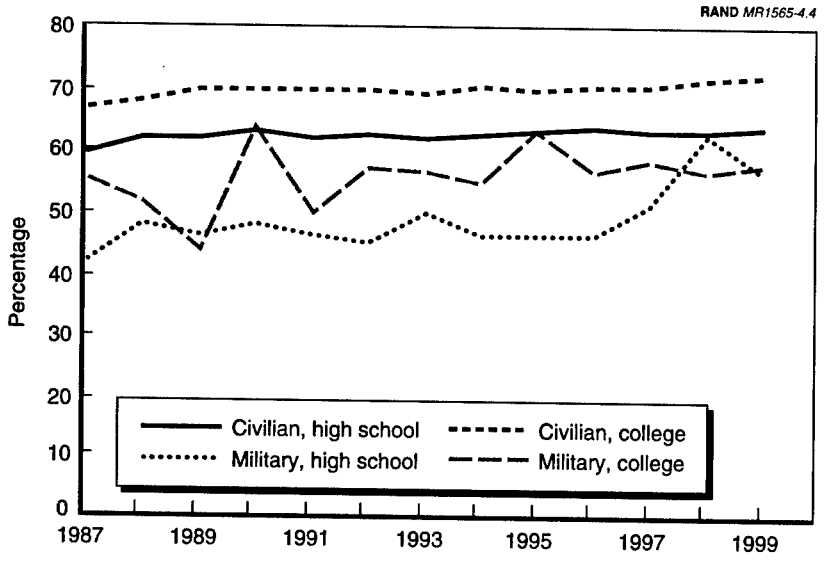

Figure 4.4—Percentage of Wives Who Worked Full-Time

WEEKLY HOURS

Among wives who worked during the year, military wives with a high school diploma averaged 34.6 hours compared with 35.7 for civilian wives (Figure 4.5). Among college graduates, military wives worked an average of 35.3 hours compared with 37.1 hours for civilian wives. The one-hour-per-week difference among wives with a high school diploma cumulates to about 40 fewer hours of work per year, or roughly one week's worth of earnings. (As shown below, military high school wives averaged 38.4 weeks per year.) For college wives, there is a gap of one to two hours per week, with the gap being somewhat smaller in the 1990s than in the late 1980s. This translates to about one to two week's worth of earnings per year.

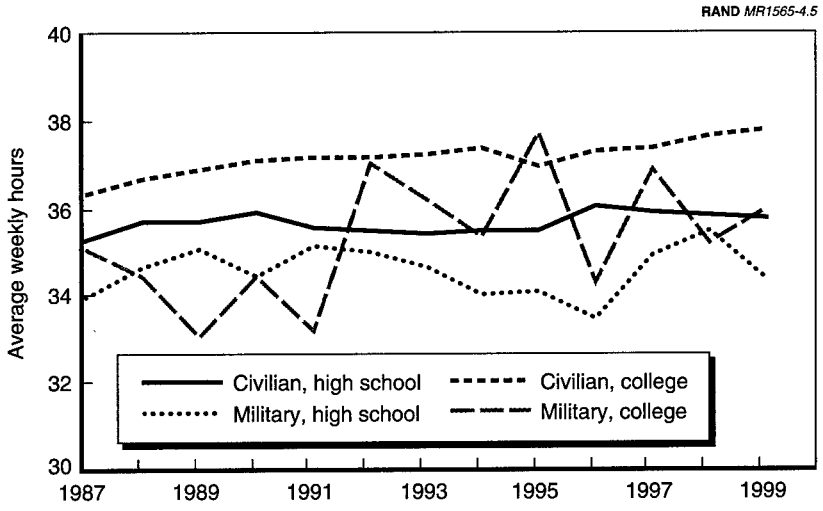

Figure 4.5—Wife's Average Weekly Hours of Work

ANNUAL WEEKS WORKED

Among working wives, military high school wives averaged 38.4 weeks of work, which was 5.4 weeks less than civilian high school wives, who averaged 43.8 weeks. Military college wives averaged 40.5 weeks of work, or 5.2 weeks less than civilian college wives with 45.7 weeks. The large difference in weeks worked must be earmarked as a major contributor to the difference in average annual earnings between civilian and military wives. Also, military and civilian wives both showed an upward trend in weeks worked (Figure 4.6). Civilian wives gained approximately two weeks of work over this period and military wives gained about the same or perhaps a bit more.

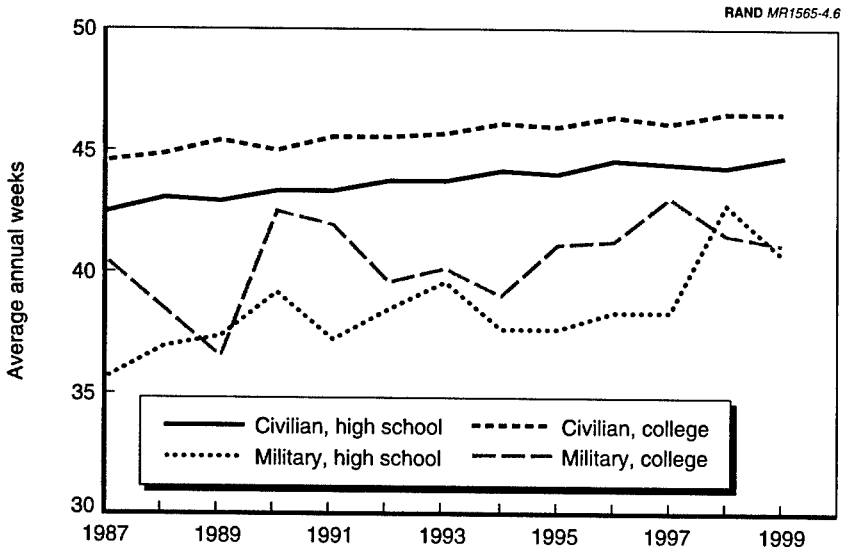

Figure 4.6—Average Annual Weeks Worked for Wives Who Worked in Year

WEEKLY EARNINGS

We focus our discussion here on wives who worked full-time. For them, weekly wage largely reflects hourly wage rather than hours per week. In the next chapter, we analyze weekly wage for full-time and part-time wives, and we also analyze hourly wage. We found large differences in weekly earnings between full-time wives (Figure 4.7). Military high school wives averaged $46 per week less than their civilian counterparts—an 11 percent difference ($392 vs. $438). For college-educated military wives, the percentage difference was even greater—16 percent—or $116 per week less than the wages of college-educated civilian wives ($615 vs. $731).

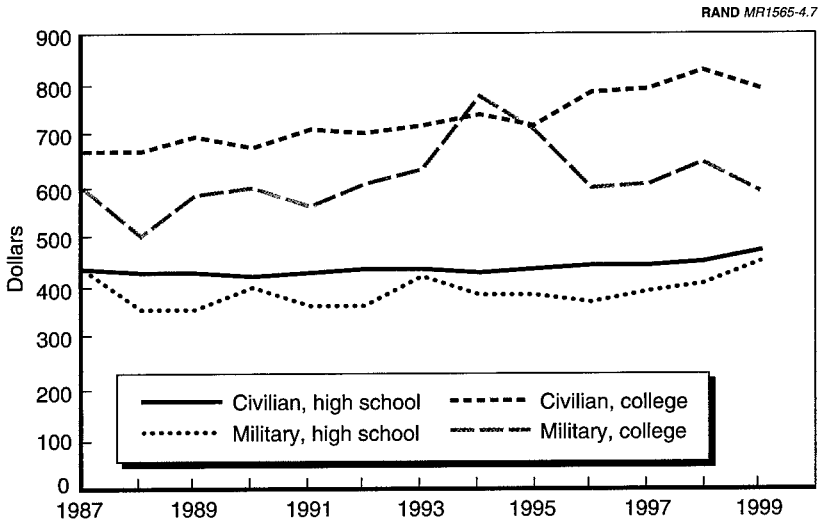

Figure 4.7—Weekly Earnings for Wives Who Worked Full-Time

For those military wives who make use of on-base child care, the effective wage difference is less than suggested by the $46 and $116 figures. The DoD currently provides several types of child care facilities on base: Child Development Centers (CDCs), Family Child Care homes (FCCs), as well as programs for school-aged children. The Military Child Care Act requires the DoD to establish a parental fee schedule for CDC care. This schedule is based on a sliding scale and is intended to provide a subsidy to all families using the system.[4] One study of military child care compared the September 1999 fee schedule and regular military compensation (RMC) tables. It found that CDC care costs comprise around 12 percent of income for those families at the lower end of the income distribution (up to $23,000) and 8 percent or less for those at the higher end ($70,000 and above) (Campbell et al., 2000). Notably, in CDC care, parents do not pay higher fees for younger children. FCC providers are independent contractors and set their own fees unless they receive a direct subsidy from DoD. If the provider accepts such a subsidy, the instal-

[4]For current CDC fee schedule, see http://military-childrenandyouth.calib.com/pdffiles/cdcfee.pdf.

lation commander sets the provider's fees. School-age child care is provided through both CDCs and FCCs, and the fees are set accordingly.

Making a rigorous comparison between on-base child care and civilian arrangements is problematic because there are no recent reliable data sources that permit such a comparison.[5] One study found that weekly fees paid by military families in 1993 were nearly 25 percent lower than the average weekly fees paid by civilian families with children in comparable care (Zellman and Johansen, 1998, cited by Campbell et al., 2000). Campbell's study presents more recent findings by comparing a 1998 convenience survey of urban child care costs done by the Children's Defense Fund with information for the same year obtained from the DoD. According to the study, the average cost to military families for full-time CDC care for one child (including infants) was $3,640 per year. In contrast, average civilian cost for full-time, center-based care for a four-year-old in selected cities in the United States ranged between $3,342 (for Birmingham, Alabama) and $7,904 (for Boston, Massachusetts).

There is an excess demand for on-base child care under its subsidized fee structure. In 2000, DoD estimated that it is meeting only about 58 percent of estimated child care need (Office of Family Policy, 2000).

While recognizing that many military families do not have access to military child care, it seems plausible that families using military child care can expect to save upward of $1,000 per year on child care relative to civilian families. For some families the savings could be considerably more.

Assuming a work year of average length, which is about 38.4 weeks for military wives who are high school graduates and 40.5 for college-educated wives, the child care savings would be $1,000/39 ≈ $25/week or more. Given average weekly earnings of $392 for high school wives, this is roughly equivalent to 6 percent higher earnings or

[5]Two of the most important data sources on child care are the *National Child Care Survey* (1992) and the *Cost, Quality, and Child Outcomes in Child Care Centers* (CQCO, 1995). However, both sources are old and the CQCO only covers four states.

more. Further, since the descriptive comparison indicates a $46 difference in the average weekly earnings of civilian versus military wives who are high school graduates, the military child care savings may make up for a significant fraction of the earnings difference—in this example, half or more. Again, the example assumes that the military wife actually uses on-base child care. For college wives, the relative savings are smaller (4 percent).

MIGRATION

When we compare movers with non-movers among military and civilian families, we find that earnings and weeks worked are lower among families who moved and the difference is larger among military families. Among wives who worked during the year, civilian wives who moved worked 3.6 weeks less on average than did civilian non-movers, whereas military movers lost six weeks of work relative to military non-movers (Figure 4.8). Further, among wives who worked during the year, the average difference in wife earnings between non-movers and movers across all the years in the series was $3,905 for military wives and $3,690 for civilian wives (Figure 4.9). In Chapter Five, we present data on the frequency of moves.

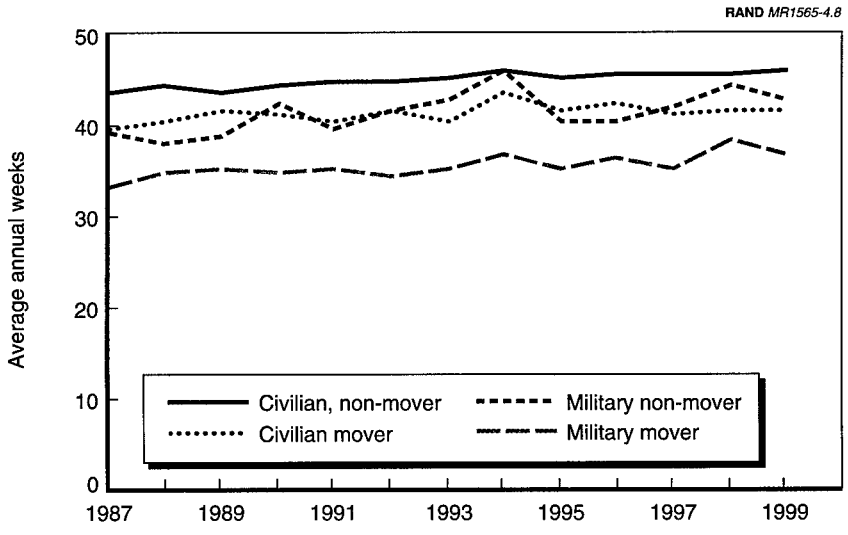

Figure 4.8—Wives' Average Annual Weeks Worked, by Migration Status

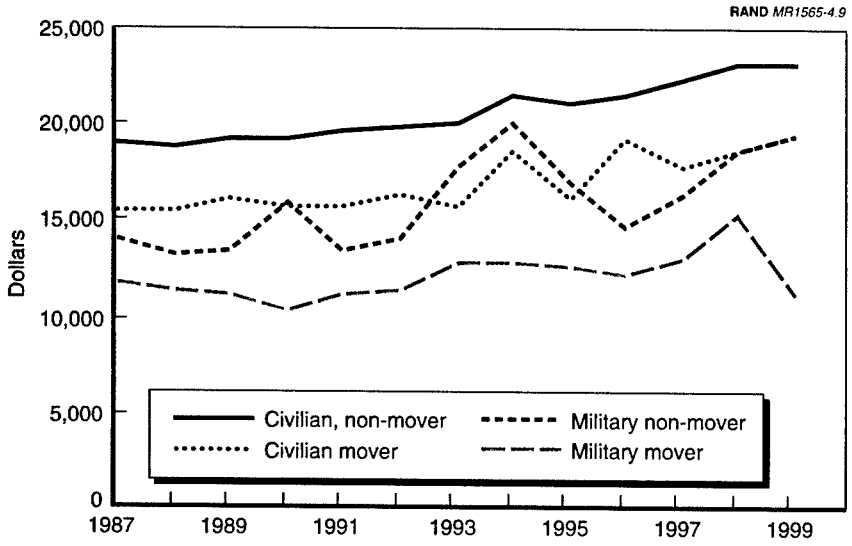

Figure 4.9—Wives' Average Annual Earnings, by Migration Status

SUMMARY OF DESCRIPTIVE FINDINGS

Military families earned about $10,500 less than civilian families. About half the difference comes from lower apparent earnings of the husband and about half from lower earnings of the wife. The military husband's earnings may be several thousand dollars higher than reported, however, as it is possible that certain components of income were not counted (e.g., the tax advantage and the imputed health benefit premium). If so, the difference between military and civilian family incomes is less, and more of the remaining difference is attributable to wife earnings. Military wives have lower earnings and a lower probability of working during a year than do civilian wives. Military wives who are high school graduates also work fewer hours per week, although there is almost no difference in weekly hours between military and civilian wives with a college education. Military wives' weekly earnings are also lower—about 11 percent lower for high school graduates and 16 percent lower for college graduates. To the extent that military wives can and do use on-base child care, which is subsidized, their effective earnings increase somewhat rela-

tive to those of civilian wives. In addition, military families lose more weeks of work when they move (and we show below that military families move more often). Finally, our descriptive findings do not suggest any dramatic widening or narrowing of these differences over time.

Chapter Five

REGRESSION RESULTS

This chapter discusses our regression results for each of the labor supply measures and for weekly wage and hourly wage. We are initially interested in identifying the overall difference in outcomes among civilian and military wives. Consequently, the discussion begins with predictions of labor supply outcomes and weekly wages for military wives and similar civilian wives. We then concentrate on the effects of specific explanatory variables. The first set of variables pertains to the age-earnings profiles of military versus civilian wives. The next sets pertain to the effects of migration and of children on labor outcomes. Finally, we discuss the effects of time trend, unemployment rate, and location.

PREDICTED LABOR SUPPLY AND WEEKLY WAGE FOR SIMILAR WIVES

To gain an overview of how labor supply and wage differ between military and civilian wives, we will make use of two facts. First, husband-and-wife military families differ from husband-and-wife civilian families in the population at large. It was for this reason that we re-weighted our military and civilian subsamples when we made the descriptive comparisons in Chapter Four; re-weighting allowed us to look at military and civilian families representative of those in the active-duty population. Now, in making use of regression models for prediction, we also want to be aware of these differences and to capitalize on them. We make predictions for "average" military families by using the average values of the explanatory variables for military families. We also make predictions for "average" civilian families

by using the average values of their explanatory variables, only in this case the civilian families are representative of husband-and-wife families in the population at large. The second fact we use is that the relationship between the explanatory variables and the labor supply and wage outcomes is different for military families than for civilian families. That is, the estimated regression coefficients are different for military and civilian families. As a result, if we make predictions for an average military family, the predictions will be different depending on whether we use the military coefficients or the civilian coefficients to make the prediction. The same point can be made if we make predictions for an average civilian family. The difference in the average value of explanatory variables (e.g., age, education, children) between military and civilian families is referred to as a "difference in means." The difference in the estimated coefficients between military and civilian families is a "difference in structure." Since there are two sets of means and two sets of coefficients, we can make four kinds of prediction, each of which has its own interpretation.

To be more specific, we make predictions that depend on means and structure in the following way. Suppose $y_1 = x_1 \beta_1$ and $y_2 = x_2 \beta_2$. The difference in the predicted value of y_1 and y_2 can be written in terms of the difference in means and the difference in structure:

$$\begin{aligned}\bar{y}_1 - \bar{y}_2 &= (\bar{x}_1 - \bar{x}_2)\beta_1 + (\beta_1 - \beta_2)\bar{x}_2 \\ &= (\bar{x}_1 - \bar{x}_2)\beta_2 + (\beta_1 - \beta_2)\bar{x}_1\end{aligned}$$

This decomposition is exact in the case of a linear model and often a useful approximation in the case of a nonlinear model. Our wage model is linear and our probability and weeks-worked models are nonlinear. We have prepared Table 5.1 with entries that correspond to this approach.[1] In the body of the table, the lower right entries correspond to predictions at military means and with the military

[1]The civilian means in the table are for the overall sample of wives. Because 98 percent of the overall sample consists of civilian wives, these means are virtually equal to the means for civilian wives. The tables use sample means for the overall sample and for the military wife subsample. Civilian families constitute 98 percent of the overall sample.

structure. We can associate this with $\bar{y}_1 = \bar{x}_1 \beta_1$. The upper right entries are predictions at civilian means and with the civilian structure: $\bar{y}_2 = \bar{x}_2 \beta_2$. The difference between y_1 and y_2 can be found going from the lower right to the upper right, then over—this corresponds to the top line in the decomposition above. Alternatively, one can go from the lower right to the lower left, then up—this corresponds to the second line in the decomposition.

The table indicates that the main reason differences are observed between the labor supply and wage outcomes for the general population of civilian wives and the population of military wives is that the means differ, not because the structure differs. This is true even though the estimated coefficients for military wives are statistically different from those of civilian wives, at a 5 percent confidence level.

The upper panel of the table makes predictions at the civilian wife means. From Table B.1 in Appendix B, we know that in the general population the average age of civilian wives is 44 and the average age of their husbands is 46. Half the families have no children under age 18 present, and the average number of children is 1. In military families, the average age of the wife is 31, the average age of the husband is 33, 74 percent have children under age 18 present, and the average number of children is 1.5. Also, military families have a higher education on average and have a higher percentage nonwhite. Using the civilian means, we find almost no difference in the predictions between the civilian and military structures (i.e., the civilian coefficients and the military coefficients). In other words, if military families looked like civilian families, there would be practically no difference between the labor supply and wage outcomes of military wives versus civilian wives. (The differences shown in the right column of the upper panel correspond to the term $(\beta_1 - \beta_2)\bar{x}_2$ in the decomposition, where "1" refers to military and "2" refers to civilian.)

Table 5.1

Summary of Joint Effects of Being a Military Wife, Evaluated at Sample Means[a]

Comparison	Prediction Using Civilian Wife Coefficients	Prediction Using Military Wife Coefficients	Difference in Military and Civilian Predictions[b]
At civilian means			
Probability wife worked in year	.71	.71	0.00
Probability wife worked full-time[c]	.59	.59	0.00
Weeks worked[c]	38.1	39.1	−1.0
Weekly earnings if full-time	$317	$317	$0
At military means			
Probability wife worked in year	.82	.74	−0.08
Probability wife worked full-time[c]	.59	.48	−0.11
Weeks worked[c]	40.9	37.6	−3.3
Weekly earnings if full-time	$308	$268	−$40

[a]Regression results are in Appendix B.

[b]Military wives' coefficient estimates in each model are jointly statistically different from those of civilian wives at the 5 percent level.

[c]Given that wife worked in year.

In the lower panel, the predictions are made at military means. In this case, the thought experiment is to consider civilian families that look like military families (civilian families are given the same means as military families), but again recognize that structures differ. In this case, we find that structure makes a difference. Military wives are 8 percent less likely to work during the year, are 11 percent less likely to work full-time, and have 3.3 fewer weeks of work given that they did work.[2] They have an average weekly wage $40 less than that of

[2]In Chapter Four, we saw a 5.2-week difference in average weeks of work between civilian and military wives who worked. In Table 5.1, the predicted difference at military wife means is 3.3 weeks. The reason for the difference between the 5.2-week figure and the 3.3-week figure comes from the difference in the distribution of moves between military and civilian wives. As we show below in Table 5.4, military wives move

civilian wives.[3] (The differences shown in the right column of the lower panel correspond to the term $(\beta_1 - \beta_2)\,\bar{x}_1$.)

Thus, although structural differences exist, from the upper panel we find that when military families "look like" civilian families the structural differences have little impact on the predicted outcomes. But from the lower panel, we find that when civilian families "look like" military families the structural differences come into play. Specifically, the labor supply and wage are predicted to be lower for the military wife than for the civilian wife.

Comparisons between the upper and lower panels provide additional information about the importance of structure versus means. For the most part, the predictions using the civilian coefficients show more modest differences between the military and civilian means. The probability of work in the year declines from .82 to .71, which admittedly is large. However, the probability of full-time work does not change (its value is .59), and the number of weeks worked declines from 40.9 to 38.1, a little less than three weeks. The average weekly wage for wives who work full-time rises from \$308 to \$317, a small change. (This comparison corresponds to the $(\bar{x}_1 - \bar{x}_2)\,\beta_2$ term.)

The predictions using the military coefficients show a decline in the probability of work in a year from .74 to .71 when going from military to civilian means. The probability of full-time work rises from .48 to .59. Weeks of work rise from 37.6 to 39.1, and the weekly wage among wives who work full-time rises from \$268 to \$317. (This corresponds to the $(\bar{x}_1 - \bar{x}_2)\,\beta_1$ term.)

With respect to wage, the table also shows that at military wife means, the predicted wage is \$40 lower for military wives than for civilian wives. This is consistent with two hypotheses. Military wives

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more frequently and their moves are longer. In our discussion of migration (below), we take this distribution into account in making predictions of the effect of migration on weeks of work.

[3]The weekly wage depends on hourly wage and hours of work per week. As seen in the descriptive analysis (Chapter Four) there is little difference between military and civilian wives in hours of work per week. Our analysis of hourly wage, reported below, suggests that the weekly wage for full-time workers carries much the same information as the hourly wage.

may be willing to accept a lower wage because they have a limited amount of time before the next PCS move. They might prefer a job with more flexible hours even if it pays a lower wage. Also, some wives may benefit from subsidized child care. The lower wage does *not* seem consistent with a third hypothesis that military wives have higher reservation wages. This poses an apparent contradiction because the results for the probability of employment, probability of working full-time, and weeks of work are consistent with military wives having a higher reservation wage than civilian wives.

We can suggest several ideas to resolve this contradiction. First, the lower labor supply of military wives may reflect selective retention in the military. Military wives with a stronger interest in the labor market may believe they can satisfy their career aspirations more readily in the civilian world. If so, this belief may affect the military family's decision for the member to remain in the military, resulting in the selective exit of wives with a greater labor supply and higher earnings potential.

The second idea is to adjust the observed wage rate for the cost of child care to obtain a net wage rate. The military wife who uses military child care could have a lower observed wage but a higher net wage, compared with the civilian wife. The military wife's higher net wage would then be consistent with her also having a higher reservation wage. To see this, let the civilian wife's market wage and reservation wage be w_c and r_c, respectively, and let t_c be the cost of child care. In the traditional one-period model of labor supply, the civilian wife participates in the labor force if $w_c - t_c > r_c$. Similarly, the military wife participates if $w_m - t_m > r_m$. We can have $r_m > r_c$ only if $w_m - t_m > w_c - t_c$. This inequality holds if the cost of child care for military wives is sufficiently lower than its cost for civilian wives. Military child care is in fact subsidized and some military wives make use of it. The reservation wage and net market wage of these wives may be higher than those of civilian wives. Moreover, depending on the wife's preferences for work (curvature of the indifference curves describing the labor-leisure trade-off), the military wife's higher net wage is compatible with fewer weeks of work, as observed.[4] The limitation of

[4]This is possible if leisure (home time) is a normal good, i.e., if the demand for home time rises with income, other things constant.

this approach is that it seems most compelling only for military wives using subsidized child care.

A third, more speculative idea calls for an extension of the traditional model of labor supply in order to model assumed constraints on the husband's time schedule and their effect on the wife's reservation wage and labor supply. Rigidity and uncertainty in the husband's schedule might result in a higher reservation wage for the wife and, when choosing a job, a higher value on jobs with flexible hours, although we have not derived a model to show this. The higher reservation wage would be consistent with a lower probability of employment, fewer weeks of work, and a lower probability of full-time work. The wife's demand for a more flexible schedule when working could be consistent with a lower wage.

To summarize, when civilian wives are compared with military wives by making predictions at the means of the military family, the military wife is predicted to have a lower probability of work in a year, a lower probability of working full-time, fewer weeks of work, and a lower wage rate. These outcomes are consistent with hypotheses of selective retention in the military and a lower inclination to work among the military wives who remain. At the same time, military wives who choose to enter the labor market may be willing to accept lower-paying jobs if such jobs offer greater hours flexibility, are flexible in the sense of being started and stopped easily, and can be found with limited job search. Moreover, military wives may be willing to accept a lower wage if it means they can start work sooner and thus have more weeks of work before their family's next change of station. Such jobs may have low training requirements and a high employee-turnover rate. Military wives may also benefit from subsidized military child care, making them willing to accept a lower offered wage. The data do not allow explicit tests of these hypotheses.

We find only small differences in predicted outcomes between military and civilian wives when the predictions are done at the civilian means.

The next sections investigate military and civilian differences in the effects of three sets of variables: age, migration, and children. We then briefly discuss the effects of time trend, cyclical change in unemployment, and location.

AGE

Figures 5.1–5.4 display the age profiles for wife labor supply and wage as predicted from the regression analysis. The regression specification includes separate terms for effects of wife age and husband age, and wife age effects depend on her level of education. In addition, the intercept for the age curves depends on wife and husband levels of education. For the curves shown, we assume the husband is two years older than the wife (see Table B.1 of Appendix B) and has the same level of education. That is, wives with a high school education are married to husbands with a high school education and, similarly, wives with a college education are married to husbands with a college education. The presence and age structure of children can also be expected to vary with age; however, the figures assume the family has no children. The effects of children are discussed separately below. In addition, although military families move more frequently than civilian families (also discussed below), the figures assume the family has not moved in the past year.

For civilian wives, the probability that the wife worked during the year varies little with age (Figure 5.1). It is in the vicinity of .90 over the 20–40 age range, rising and then falling a small amount. The probability is slightly higher for wives with college than for wives with high school educations. For military wives, the probability starts at .81, nearly 10 percent lower than for civilian wives. The probability then declines with age, and the decline is greater for military wives with college (officers' wives). By age 31, which is the average age for military wives, the probability that the military wife worked is .79 for wives with high school and .73 for wives with college. For civilian wives, the corresponding figures are .90 and .93. Therefore, even from the start, the military wife is less likely to have worked during the year, and the gap widens with age.

The decline with age in military wives' probability of work may reflect selectivity and choice. Older military wives are an increasingly selected sample. The wives and husbands with a stronger preference for the military are the ones more likely to remain with the military. These wives might have a weaker preference for market work than the wives (and husbands) who leave the military. That said, we have no working hypothesis to explain why there should be a correlation between the preference for the military and the preference for work

or leisure, and our null hypothesis is that these preferences are not correlated. Preferences aside, the decline in the probability is consistent with several behavioral hypotheses. Military wives may increasingly choose not to work because they are expected to devote time to service-related activities. They may not work because their husbands are earning a higher income or gain access to valuable in-kind income, e.g., nice on-base housing. They may not work because they find it increasingly difficult or tiresome to adapt to their husbands' schedules and the frequency of moves required by the military.

For both civilian and military wives, the probability of working full-time (conditional on working) rises with age (Figure 5.2). ("Full-time" is defined as at least 35 weeks worked and at least 35 usual hours of work per week.) For civilian wives, the probability is nearly identical for high school– and college-educated wives. The probability rises from about .70 at age 20 to .85 at age 30 and stays there. For military wives with high school, the probability rises steadily from .62 at age 20 to .85 at age 40. Up to age 31, the average age of a military wife, the probability is nearly .10 lower than the probability for civilian wives. The probability of full-time work is lowest for military wives with college, however. Their probability at age 20 is .50 versus .70 for civilian wives with college, and by age 40 it has risen to .75, which is .10 below the value for civilian wives at that age.

The increase with age in the probability of working full-time may reflect selectivity. The decline in the probability of working (Figure 5.1) could be fed mainly by the departure of wives with a weaker attachment to the labor force, i.e., wives likely to work part-time. This would lead to an increase with age in the probability of working full-time among wives remaining in the labor force. Also, the increase in the probability could be a response to wage growth with age.

The findings on weeks of work (Figure 5.3) indicate a persistent, moderately widening gap between civilian and military wives. The figure shows the expected number of weeks conditional on having worked at some time during the year. As with the probability of full-time work, the expected number of weeks worked has virtually the

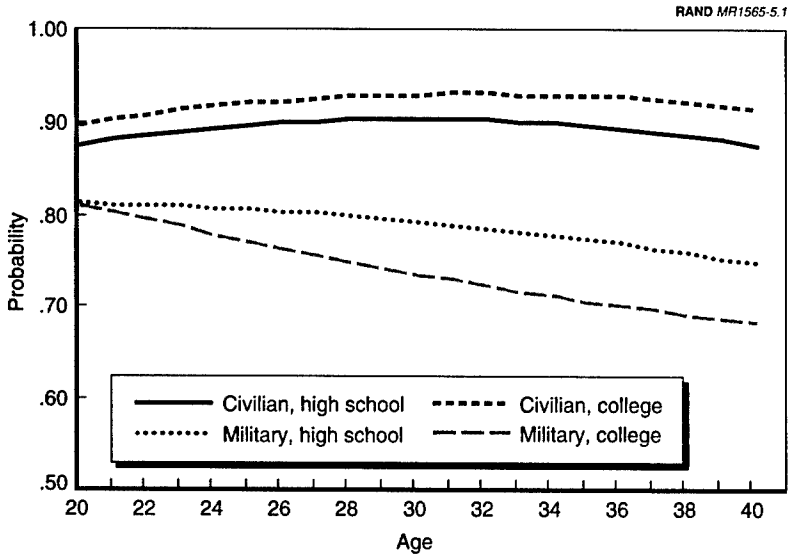

Figure 5.1—Effect of Age on the Probability That the Wife Worked During the Year

same age profile for civilian wives with high school as for those with college. Weeks rise from 44 weeks at younger ages to nearly 48 weeks by age 30 and then remain there. For military wives with high school, weeks rise from 43 to 44, a small increase. Younger military wives with high school thus have about one less week of work per year than do civilian wives with high school, and older military wives have about four weeks less. For military wives with college, weeks of work rise from 41 weeks at younger ages to 42 weeks at older ages. Compared with college-educated civilian wives, military wives have three fewer weeks at younger ages and six fewer weeks at older ages. This is consistent with the hypotheses mentioned above, i.e., selective withdrawal of wives with a weaker attachment to the labor force, and greater labor supply in response to a rising wage among those remaining in the market.

Figure 5.4 shows the age profile of weekly wage for wives who work full-time. The weekly wage appears to rise more slowly for military

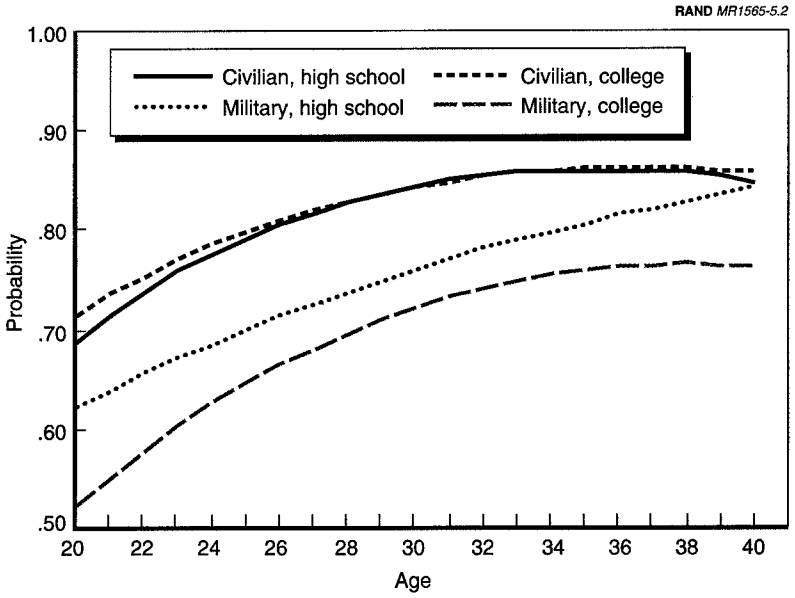

Figure 5.2—Effect of Age on the Probability That the Wife Worked Full-Time

wives with college than for civilian wives with college. But in contrast, the weekly wage appears to rise more rapidly for military wives with high school than for civilian wives with high school. At younger ages, the weekly wage difference between college-educated wives is about $65, and it rises to over $100 by age 40. For high school–educated wives, the weekly wage difference at younger ages is about $55, and it diminishes to around $35 by age 40.

Despite these appearances, statistical tests (reported in Table 5.2) indicate no difference between military and civilian wives in the effect of wife age on full-time weekly wage. This is true for both college-educated and high school–educated wives. But there is a difference that cannot be detected from the age profiles alone: The weekly wage of military wives who work full-time rises with husband age. For civilian wives who work full-time, husband age has no statistically significant effect on wage. Figure 5.4 also indicates that the weekly wage of the military wife is always less than that of the

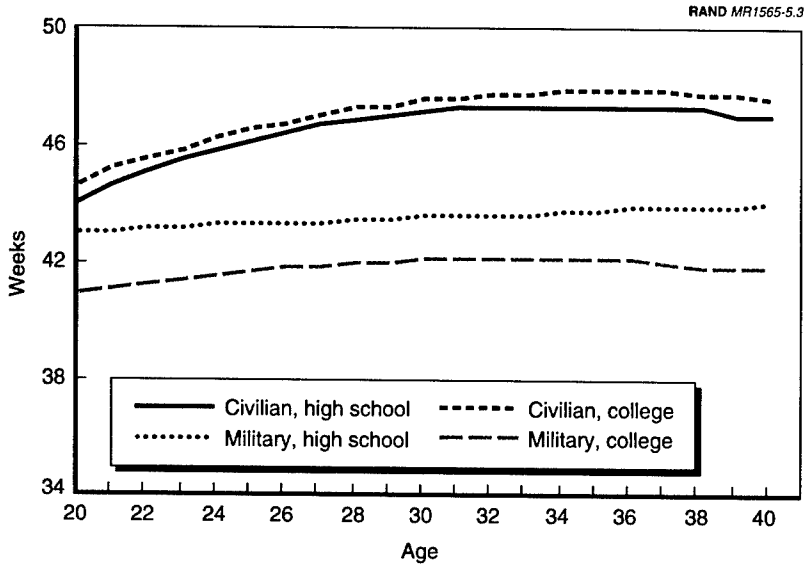

Figure 5.3—Effect of Age on the Number of Weeks the Wife Worked

civilian wife with the same level of education. Table 5.2 supports this point. The intercept of the military wage profile is statistically less than the intercept of the civilian wage profile.

Before commenting further on these findings, we also want to discuss the hourly wage results. In comparison with the weekly wage results, the hourly wage results control for the selective nature of labor force participation. The weekly wage regression for wives who work full-time are, of course, based on observations of wives who choose to work during the year and in fact work at least 35 weeks and at least 35 hours per week. Variations by age in the decision to work and the decision to work full-time will affect the composition of wives who work full-time, and therefore will affect the estimates of the weekly wage profile. The hourly wage analysis controls for this by simultaneously estimating an equation for the decision to work during the year and an equation for the hourly wage conditional on work. Although the hourly wage analysis does not divide into an hourly wage for wives who worked full-time and one for wives who worked part-time, it does accurately reflect the structure of hourly wage. This is

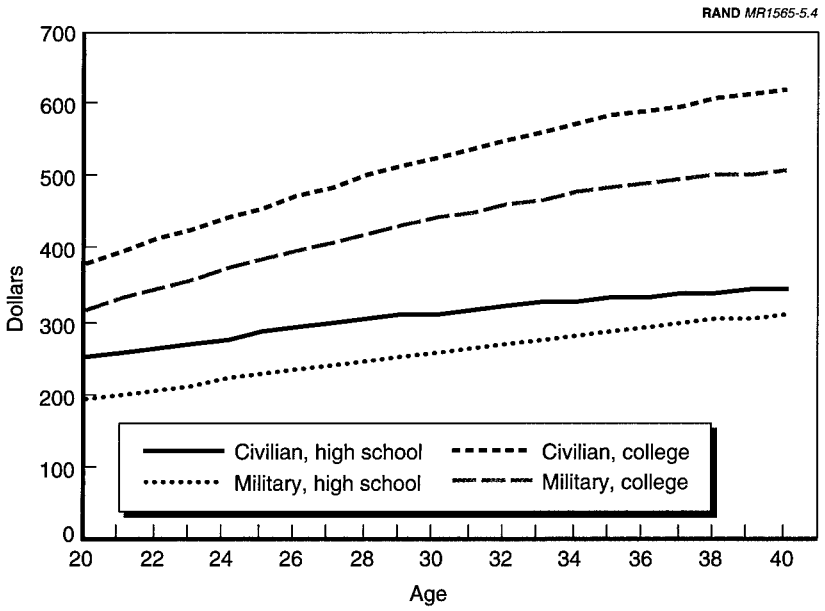

Figure 5.4—Effect of Age on Weekly Wage for Wives Who Worked Full-Time

because of the control for selection into work and, further, because hourly wage does not vary with weeks of work. More specifically, we did a tabulation of average hourly wage against weeks of work and found that the level of the hourly wage was independent of (did not change with) weeks of work. (This was true for the range of weeks from 5 weeks to 52 weeks; for 1 to 4 weeks, the hourly wage was extremely noisy and the values were typically far too high to be credible.)

The predicted hourly wage is shown in Figure 5.5.[5] The figure shows predictions from the "structural" wage equation, i.e., the relationship between hourly wage and the explanatory variables after controlling for the selection effect. Selection is modeled as a function of husband

[5]The hourly wage model was estimated on wives who had an hourly wage of $3/hour or more. Initial results that included wages of lesser amounts were not credible. About 5 percent of the observations were removed by this restriction.

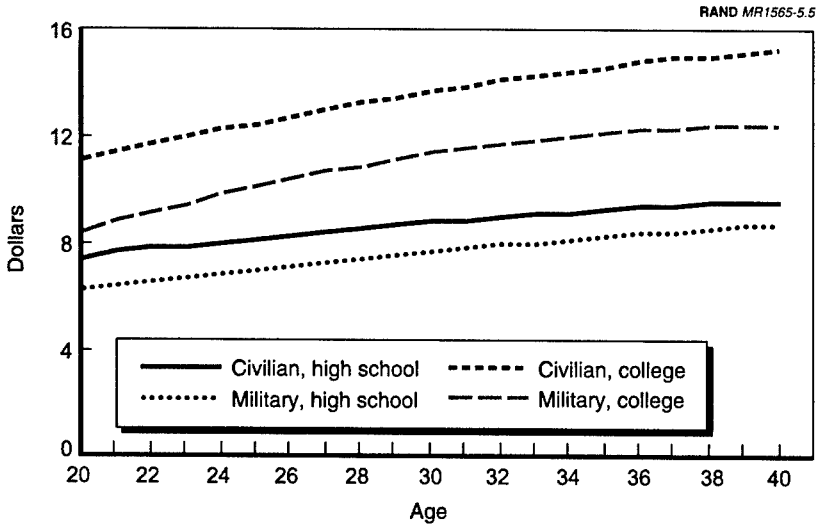

Figure 5.5—Effect of Age on Hourly Wage for Working Wives

age, education, and race/ethnicity and the presence and number of children, in addition to being a function of wife age, education, and race/ethnicity. Hourly wage is a function of the wife's variables, and the estimation methodology recognizes that the observed wage is an outcome conditional on the wife choosing to work. As seen, the age profiles for predicted hourly wage are similar to those of the weekly wage for wives who worked full-time (Figure 5.4) but show less tendency to diverge or converge.

The hourly wage for military wives with college appears to start relatively lower than the weekly wage, and there is little indication that the hourly wage grows more slowly than for civilian wives with college. For wives with high school, the impression remains that the hourly wage for military wives rises slightly faster than that for civilian wives. Yet this amounts to a small difference. At age 20, the predicted hourly wage is $7.50 for civilian wives with high school and $6.23 for military wives with high school. At age 40, the hourly wages are $9.64 and $8.75.

The main message of Figures 5.4 and 5.5 is that the wage of military wives starts lower and stays lower. The lack of a widening wage gap

with age gives little support for the hypothesis that military wives accumulate human capital more slowly than civilian wives. The findings are consistent with a lower-wage equilibrium based on the more frequent moves of military wives. Employers may expect the military wife to move and so will not offer positions that require the accumulation of large amounts of firm-specific capital. Also, employers may take advantage of their knowledge that the military wife will move by offering a lower wage even if investment in firm-specific capital is not a factor. Since the military family expects to move, the wife has limited time to find a job and start earning. A short time horizon leads to a willingness to accept a lower wage rather than search and wait for a higher wage. Employers may therefore offer lower wages in equilibrium.

Another possible hypothesis is that military wives seek more flexible jobs in response to the rigidities and uncertainties in their husbands' military schedules. If so, and if employers are aware of this, it is another element that can support a lower-wage equilibrium. This explanation may be less compelling than the one based on more frequent moves because, like military wives, many civilian wives also cope with rigidities and uncertainties in their husbands' schedules. Still, these factors may be less important on average for civilian wives; we do not know.

We conducted tests of statistical significance to determine whether the age-related effects of military wives differed from those of civilian wives. Table 5.2 summarizes the results, which generally support the notion that the relationships in Figures 5.1–5.5 are meaningfully different between military and civilian wives at a given level of education. Asterisk entries in the table indicate that the hypothesis that the coefficients for military wives equal those for civilian wives cannot be accepted at the usual levels of significance. The tests show significant differences in every case except for that of the wife age in the weekly wage equation for wives who worked full-time. That is, in terms of statistical significance, the weekly wage increases with the wife's age at the same rate for military wives as for civilian wives. However, the tests also indicate that the effect of husband age on wife weekly wage differs between military and civilian wives. Weekly wage rises faster with husband age in military families (see Appendix B, Table B.4).

Table 5.2

Statistical Significance of Tests of the Null Hypothesis That Age-Related Coefficients for Military Wives Equal Those for Civilian Wives

Coefficients Tested	Wife with High School	Wife with College	Husband
Intercept[a]			
Probability of working	**	**	n.a.
Probability of working full-time	**	**	n.a.
Weeks of work	**	**	n.a.
Weekly wage if full-time	**	**	n.a.
Age and age-squared[b]			
Probability of working	**	**	**
Probability of working full-time	**	**	**
Weeks of work	**	**	**
Weekly wage if full-time			*

[a]Intercept is the sum of the coefficients on the variables indicating the wife's education level and the husband's education level, which is assumed to equal that of the wife. Since here the husband's education indicator is included with the wife's, there are no separate tests of the husband's intercept.

[b]Joint test of whether the military wife's age and age-squared coefficients equal those of the civilian wife, and similarly for the military husband's age and age-squared coefficients.

* = significant at .05; ** = significant at .01.

This pattern is consistent with the notion that as military husbands reach higher ranks, their wives with weaker attachments to the labor force either withdraw from it or work part-time. The rise in weekly wage with husband age thus could result from the selective retention of wives who work full-time; the higher-wage wives remain as full-time workers. Another related possibility is that as husbands reach high ranks, they have more discretion over their schedules and more predictability in them. As a result, the wife who works full-time is less tied to household activities and not as restricted in allocating her time to market work.

MIGRATION

As discussed in Chapter Two, there are several hypotheses why migration, particularly longer moves that are likely to involve a job change, will more adversely affect the labor supply and earnings of

military spouses relative to their civilian counterparts. First, military spouses may accumulate less general and specific human capital because they are tied movers. The empirical findings on wage growth with age did not support this hypothesis, however. Second, military spouses may be offered and take lower-wage jobs for reasons related to moving frequently and a possible desire for more flexible hours of work. The findings supported this hypothesis. Third, the demand for labor, particularly for better-educated spouses, is likely to be lower in the remote locations where some military bases are found. These factors would tend to reduce military spouses' earnings relative to their civilian counterparts. In addition, the literature on greedy institutions suggests that wives are likely to bear the brunt of the tasks associated with moving to a new location. These tasks include coordinating the move, making the move with the household goods, and settling into the new location (i.e., finding new schools, new doctors, new mechanics, and so forth). Consequently, military spouses might be expected to supply less labor as a consequence of a move than their civilian counterparts.

Potentially offsetting the negative impact of moving on military spouses is the effect of Do-It-Yourself Moves (DITY) on spousal labor supply. The government offers military members an incentive to move their own household goods, equal to 80 percent of what it would have cost the government to move the authorized or actual household good weight (whichever is less) commercially, minus the DITY cost incurred. The DITY cost is the amount the government pays a contractor for providing the rental vehicle, equipment, and packing materials. In other words, if a member can move his goods far more inexpensively than a commercial mover, he can realize a financial benefit. The DITY program gives members an incentive to find inexpensive ways of moving their belongings. How this incentive affects spouse labor supply is an empirical question. If the family opts for a financially inexpensive mode of moving their belongings, but relies more heavily on the spouses' time to accomplish the move, the DITY incentive might result in reduced spouse labor supply. But if the DITY incentive induces military families to spend less time moving their households overall, say by spending less time in transit, the negative effect of moving on spousal labor supply might be reduced. That is, the DITY incentive might increase spouse labor supply over what it would have been.

Table 5.3 summarizes the estimated association between moving and weekly earnings and labor supply for civilian and military spouses. These estimates are derived from the regression estimates in Appendix B.

Table 5.3

Estimated Effects of Migration on Weekly Earnings and Labor Supply, by Type of Move

Effect on	Different County	Different State	Different Division	Different Region	Abroad
Probability wife worked in year[b]					
Civilian	.0037*	−.0222*	−.0061*	−.0402*	−.3024*
Military	−.0098*	−.0086*	.0399*	−.0018*	−.0727*
Probability wife worked full-time[b]					
Civilian	−.0643*	−.1354*	−.1032*	−.1842*	−.3379*
Military	.0012*	−.0662*	−.1231*	−.1237*	−.2868*
Weeks worked[a]					
Civilian	−9.0825*	−16.5958*	−15.9052*	−24.2849*	−49.6923*
Military	−6.9353*	−8.8005*	−12.4433*	−15.0691*	−28.2693*
Full-time weekly wage (percent change)					
Civilian	.0050	−.0111	−.0006	−.0530	−.2295*
Military	.0701	−.0348	−.1369	−.1198	.0300
Part-time weekly wage (percent change)					
Civilian	.1511*	.1816*	.2475*	.2485*	−.0644
Military	.0171	.2878	−.0004	.1341	.1546

NOTE: Coefficient for civilian wives is tested against the null hypothesis that the coefficient is 0. Coefficient for military wives is tested against equality with the coefficient for civilian wives.

[a]The figures are estimated effects on the tobit index function for wives who worked 1 to 52 weeks.

[b]The figures are estimated dummy marginal effects, not coefficient estimates. The marginal effect indicates the change in the probability when the dummy variable indicating the type of move is 1 vs. 0, all other variables held at their sample mean values.

* = significant at .05.

Consider labor supply first and weeks worked specifically. We find that spouses who move work fewer weeks and the greater the distance of the move, the fewer the weeks worked in general. For example, moving to a different county reduced weeks worked by 9.1 weeks for civilian spouses and by 6.9 weeks for military spouses. Moving from a different region reduced weeks by significantly more—by 24.3 weeks for civilian spouses and 15.1 weeks for military spouses. What is remarkable about the results for weeks worked is that military spouses who moved generally lost fewer weeks than their civilian counterparts in any given distance category. For example, civilian spouses lost 15.9 weeks if they moved across divisions but military spouses lost only 12.4 weeks. In other words, military wives who moved had more weeks of work and supplied more labor than their civilian counterparts. These results are surprising because the descriptive results showed the opposite result, i.e., that military wives worked five *fewer* weeks than civilian wives on average. What can account for the difference between the regression and the descriptive results?

The chief explanation concerns the distribution of types of moves. Table 5.4 shows the distribution of spouses across types of move, i.e., within the same county, different county but same state, different state but same division, different division but same region, different region, and from abroad. The counts are weighted to reflect the military population. Since many of the civilian spouses who moved from abroad are likely to be immigrants, it seems sensible to exclude civilians moving from abroad in the count of movers. Similarly, since some moves within a county are not likely to involve a job change, it seems sensible to put more weight on the regression results for intercounty, interstate, interdivision, and interregion moves.

The table shows that military families are more likely to move at least across county lines, i.e., their move is more likely to involve a job change, and military families are more likely to move farther distances. The percentage of moving families who moved within the same county (excluding civilians who moved from abroad) was 66 percent for civilians and 34 percent of military families. Thus, two-thirds of all civilian moves were within the same county, while two-thirds of military moves were across county lines and were likely to involve a job change for the spouse. The percentage of moves that

Table 5.4

Distribution of Move Types Within Past Year Among Civilian and Military Families, 1987–1999, Excluding 1994 (Weighted Counts)

	Civilian	Military
Total	100%	100%
Non-movers	75.5%	60.6%
Total movers, excluding civilians from abroad	24.5%	39.4%
Distribution of movers (excluding civilians abroad)		
Same county	65.9%	33.6%
Different county, same state	18.5%	7.9%
Different state, same division	6.3%	8.1%
Different division, same region	2.7%	7.6%
Different region	6.7%	31.4%
Abroad		11.4%

were at least across *state* lines was 59 percent for military families and 16 percent for civilian families. The fraction of military moves from abroad was 11 percent.

Another way to state the key points in Table 5.4 is as follows. About 25 percent of civilian families move, of whom about one-third move out of county. Therefore, only one-twelfth (.25 × .33) of civilian families have long moves. In contrast, about two-fifths of military families move, of whom two-thirds move out of county. Therefore, about one-fourth (2/3 × 2/5) of military families have long moves. A larger fraction of military families moves long distances.

These figures confirm the conventional wisdom about the frequency of PCS moves. Military families are more likely to be moving and they move longer distances. The regression results indicate that for any given type of move, military families are more efficient movers in the sense that military wives generally lose fewer weeks of work relative to non-moving military wives than do civilian wives. Put differently, compared with wives who do not move, military and civilian wives who move lose weeks of work, but military wives lose fewer weeks of work for any given length of move than do civilian wives. However, military wives move more frequently and their moves are more likely to involve a job change because they are more likely to move long distances.

We can use the regression results together with the distributions shown in Table 5.4 to show the extent to which the difference in

weeks worked among moving civilian and military spouses is due to differences in the frequency of long moves and in the average number of weeks lost for a given type of move. Using the condition of having a long move (i.e., moved across counties), we estimate that the average number of weeks of work lost by a working civilian wife is 14.0 weeks and is 15.3 weeks by a working military wife. Thus, the difference is only 1.3 weeks on average. Since one-twelfth of civilian wives move across county lines while one-quarter of military wives make such moves, we estimate that the number of weeks lost due to moving is 1.2 for civilian spouses ($1/12 \times 14.0$) and 3.8 weeks for military spouses ($1/4 \times 15.3$). This is a difference of 2.6 weeks on net. Thus, the greater frequency of long moves among military wives largely explains the differences in the number of weeks worked among moving military and civilian spouses. To summarize, on average military wives who move lose more weeks of work than civilian wives, even though military wives accomplish a given move more efficiently, because military wives are more likely to move, and they move farther distances and farther distances have a bigger penalty on labor supply.

The results for the other measures of labor supply indicate that moving is associated with reduced labor supply, and the reduction is generally greater for civilian wives than for military wives. Furthermore, all of the estimates pertaining to labor supply in Table 5.3 are statistically significant.

Specifically, Table 5.3 shows the effect of moving for civilian and military spouses on the probability of working full-time. The results indicate that moving is associated with a reduced probability of working full-time for civilian wives, and with the exception of moves across divisions, the greater the distance of the move, the larger is the reduction. Furthermore, except for division, the reduction is larger for civilian than for military spouses.

For example, moving to a different state is associated with a 13.5 percentage point reduction in the probability of working full-time among civilian wives. Among military wives, moving to a different state is associated with a 6.6 percentage point reduction. Moving to a different region is associated with an 18.4 percentage point reduction in the probability of working full-time among civilian wives, but with only a 12.4 percentage point reduction among military wives. Finally,

civilian wives who moved from abroad had a 33.8 percentage point reduction in the probability of working full-time while military wives moving from abroad had a 28.7 percentage point reduction. It is important to recognize that it is likely that moves from abroad are not comparable for military and civilian wives. A move from abroad is likely to constitute the end of an overseas rotation for a military family. In contrast, a move from abroad probably constitutes immigration in the case of civilian families. These immigrant families are likely to differ in significant ways, unobservable in the CPS, from military families returning from overseas.

The same result is generally obtained for the probability of working for both full-time and part-time wives. As Table 5.3 indicates, moving is generally associated with a reduced probability of working among both civilian and military wives, but, as before, the reduction is smaller for military wives. The probability of working is 30.2 percentage points lower among civilian wives who move abroad but is only 7.3 percentage points lower among military wives relative to nonmovers. A similar result is generally found for shorter moves. A move across divisions actually has a positive effect on the probability of working among military spouses while a move across divisions has a small negative effect on the probability of working for civilian wives. Moves across states show about a 1 percentage point reduction in the probability of working among military wives but a 2.2 percentage point decline for civilian wives. However, the effect of moving across county lines within a state on the probability of working appears to be the same for military wives and civilian wives.

Table 5.3 also shows the estimated effect of moving on the weekly earnings of full-time and of part-time spouses. Among part-time civilian wives, those who move generally have higher weekly earnings while among full-time civilian wives, those who move generally have no statistical difference in their weekly earnings, with the exception of those who move abroad. In that case, civilian movers have lower earnings. Even though there appear to be some differences between military and civilian in the effect of moving on full-time and part-time earnings, these differences are not statistically significant. Overall, these results differ from the descriptive results where we found that, on average, military wives who moved had a somewhat larger reduction in weekly earnings than did civilian wives.

CHILDREN

The regressions include three variables that capture the presence and number of children in the family. The first two variables are whether the family has children under age 18, and if so, the number of children under age 18. Since the effects on labor supply and earnings may differ if the family has very young children, the third variable indicates the presence of a child under the age of 6. These variables help proxy the factors associated with the wives' reservation wage. In Chapter Two, we hypothesized that the presence and number of children, particularly young children, increases the reservation wage and therefore reduces labor supply. The magnitude of the effect could differ for military families, where we mentioned two additional hypotheses. Inflexibility in the husband's schedule could further increase the wife's reservation wage, which would lead to greater labor supply reductions for the wife. However, the presence of subsidized child care could reduce the market wage she was willing to accept; her wage net of child care costs could be higher than her reservation wage. This section reviews the reduced-form empirical evidence related to these hypotheses.

We use the parameter estimates for the three variables to compute the estimated effect of having a child under age 6 and of having a child age 6 to 17. The estimated effect of having a child under age 6 is equal to the sum of the marginal effect of the three variables. The estimated effect of having a child age 6 to 17 is equal to the sum of the marginal effect of the presence of children under age 18 and the number of children. (The variable indicating the presence of children under age 6 is held constant.)

Consider the relationship between children and labor supply, shown in Table 5.5. Having a child under the age of 6 is generally associated with reduced labor supply for both civilian and military wives. Civilian wives have about 11.5 fewer weeks of work, an 18.6 percentage point lower probability of working full-time, and a 15.5 percentage point lower probability of working, compared with wives without children. Military wives have 11.9 fewer weeks of work, a 15.3 percentage point lower probability of working full-time, and a 20.6 percentage point lower probability of working, compared with wives without children. The lower weeks of work and lower probability of

Table 5.5

Estimated Effects of Children on Weekly Earnings and Labor Supply

Effect on	Children Under Age 18 and Some Children 0–5[a]	Children Under Age 18 and No Children 0–5[b]
Probability wife worked in year[d]		
Civilian	–0.155**	–0.052**
Military	–0.206**	–0.025**
Probability wife worked full-time[d]		
Civilian	–0.186**	–0.136**
Military	–0.153**	–0.085**
Weeks worked[c]		
Civilian	–11.483**	–5.000**
Military	–11.860**	–2.214**
Full-time weekly wage (percent change)		
Civilian	0.020**	–0.061**
Military	–0.057	–0.036
Part-time weekly wage (percent change)		
Civilian	–0.012**	–0.058**
Military	–0.138	–0.191

[a]Tests were done on the joint significance of coefficient estimates on the indicator for children under 18, the indicator for children under 6, and the number of children. Null hypothesis for civilian wives was that coefficients were equal to 0. Null hypothesis for military wives was that their coefficients were equal to those of civilian wives.

[b]Tests were done on coefficient estimates on the indicator for children under 18 and the number of children.

[c]Figures are estimated effects on the tobit index function.

[d]Figures are estimated marginal effects, not coefficient estimates. The marginal effect indicates the change in the probability when the number of children of each type is increased by one, all other variables held at their sample mean values.

* = significant at .05; ** = significant at .01.

working are statistically significant differences. However, for wives with young children we find no statistically significant difference in the weekly wage of either full-time or part-time military wives versus civilian wives.

Given the importance of young children on labor supply outcomes, it is worth considering whether military families of a given age are more likely than civilian families to have young children. In fact, among families with children, the actual presence of young children

tends to follow the same pattern for both groups. When the wife is young and the family has children, it is very likely that there is a child under age 6 present. As the wife ages, the family tends to complete its childbearing, and the youngest child eventually enters first grade. At that time, the family with children typically has no children under the age of 6. This time is reached at different times in different families, depending on when they began having children and how many they have. But the age pattern for the presence of children under age 6 in families that have children present is much the same for military families as for civilian families. The figures in Appendix C support this point.

The effects of children on the wife's labor supply are much smaller when no young children are present. Specifically, civilian wives with children age 6–17 have 5.0 fewer weeks of work, a 13.6 percentage point lower probability of working full-time, and a 5.2 percentage point lower probability of working, compared with civilian wives without children. Military wives with children age 6–17 have 2.2 fewer weeks of work, a 9 percentage point probability of working full-time, and a .25 percentage point lower probability of working. The difference in weeks of work between military and civilian wives and in the probability of working and of working full-time is statistically significant at the 1 percent level. Civilian wives' part-time weekly wage is 5.8 percentage points lower, whereas military wives' weekly wage is about 20 percentage points lower when young children are not present. In the case of full-time weekly wages, civilian wives' weekly wages are 6.1 percentage points lower and military wives' weekly wages are 3.6 percentage points lower when there are no young children present.

When evaluating our results in light of the hypotheses in Chapter Two, we find strong support for the hypothesis that the presence of children is associated with reduced labor supply. We also find evidence that the reduction is smaller among military wives in the case of the presence of children between the ages of 6 and 17, i.e., school-age children. However, we find the opposite result when the children are younger. That is, we find that the reduction in labor supply tends to be larger for military wives than for civilian wives who have children under age 6.

These findings for military wives are consistent with the following interpretation. Younger members of the military have more rigid and less predictable schedules compared with those of civilian husbands, and younger wives face a greater burden in adapting to those schedules. Despite the possible availability of military child care, the young military family tends to adapt by not having the mother hold a job. It is possible that despite military subsidies for child care, the availability of reliable day care, especially for younger children, is limited at the times of day that military wives may prefer to work. Military service often involves an erratic schedule, long hours, and the constant threat of deployment. Military wives with young children may be unable to line up reliable day care for young children when their husbands' schedules are so uncertain. Furthermore, because military families usually live away from their extended families (or only live near them by chance), military families cannot rely on their children's grandparents or other relatives to provide day care, as can their civilian counterparts who do live near relatives. Therefore, military families must rely on the wife or possibly on neighbors to provide reliable day care.

Given the availability of school and after-school activities for school-age children, the issue of arranging reliable day care may be less problematic for families with older children. Further, as the military family grows older, we saw that the wife's labor force participation declines, whereas for civilian wives it remains approximately constant. Thus, the smaller negative effect of children age 6–17 among military wives may be the result of the changing composition of working wives.

TIME TRENDS

Our analysis incorporated variables that allow us to examine how military and civilian spouse labor force outcomes have varied over time. The civilian economy has grown over the last decade, after a recession in the early 1990s. Furthermore, the DoD has undergone dramatic downsizing and restructuring in the post–Cold War 1990s, with changes in the type of military operations and increases in their pace. It therefore seems reasonable to consider the possibility that the labor force outcomes of military spouses have changed over time relative to their civilian counterparts. To examine this possibility, we

included a time trend variable in the regression specifications. This variable is interacted with the military wife variable to account for the possibility that the trends in labor force outcomes differ for military wives. We also interacted the time trend variable with the dummy variables representing the education of wives and the education of their husbands to account for the possibility that the outcomes might differ by educational level. Since the relative earnings of those with college have increased dramatically on an economy-wide scale, it seems reasonable to expect the time trends to differ according to education attainment.

Our main finding is that the joint effects of the time trend variables in the labor supply equations are quite small in magnitude for both civilian and military wives, although they are often jointly statistically significant. For example, we estimate that weeks worked rose by .47 weeks each year among civilian wives and fell by .21 weeks each year among military wives. The trends in weeks worked were even more stable for high school wives and for college-educated wives. Thus, our overall conclusion is that labor supply was quite stable for both civilian and military wives over the time period considered, regardless of educational status.

With respect to earnings, we conclude that weekly earnings rose modestly over the time period under consideration, among civilian wives and among military wives overall. Also, the difference between the full-time weekly earnings of military and civilian wives over time is quite stable. For example, we estimated a 1.1 percent increase each year in the weekly earnings of both military and civilian spouses working full-time. Among college-educated wives, the annual increase was estimated to be 1.1 percent among civilian wives and 1.0 percent among military wives. Thus, over a ten-year period, we estimate that weekly earnings for full-time wives would increase by 11 percent among civilian wives and by 10 percent among military wives.

UNEMPLOYMENT RATE EFFECTS

There are fundamentally two kinds of variation in the unemployment rate: cyclical and structural. Cyclical variation concerns movement in the unemployment rate over time, whereas structural variation concerns persistent differences in the level of unemployment

across geographic areas that are presumed to be traceable to differences in the structures of local economies. In our analysis, the unemployment rate is measured as the percent change in the unemployment rate from year to year within a state. By focusing on the within-state difference over time, our measure nets out persistent state-specific structural variation in the unemployment rate. Therefore, our measure primarily reflects cyclical variation in unemployment over time. Of course, it is possible that there are year-to-year structural variations in the level of unemployment in local economies within a given state. Therefore, our measure may also capture some structural changes in unemployment as well.

Cyclical and structural unemployment can be expected to have different effects. An increase in cyclical unemployment is associated with a decrease in new job creation, an increase in job loss, a possible decrease in labor force participation, and a slowing of individual wage growth among workers. The "added-worker" hypothesis states that the labor supply of wives increases when their spouses become unemployed, while the "discouraged-worker" hypothesis states that wives' labor supply falls as the contracting economy adversely affects her employment opportunities. Thus, the net effect on the labor supply of spouses is theoretically ambiguous, although empirical evidence tends to support the discouraged-worker hypothesis (Lundberg, 1985). Therefore, we hypothesize that increases in the unemployment rate would reduce our labor supply measures for the civilian wife. For the military wife, the member's unemployment from the military is not a concern, and therefore the added- and discouraged-worker hypotheses are less likely to be operative.

As for the effect of unemployment on earnings, again there may be differences between structural and cyclical effects. A higher level of structural unemployment is associated with a *higher* average local wage. Economists view this as a compensating differential that tends to equal the expected wage across areas. However, higher cyclical unemployment results in the unemployment of lower-wage workers; also, job seekers with a weak attachment to the labor force may exit from it. These changes could result in a higher average wage among those who remain employed.

Structural and cyclical unemployment may affect military and civilian wives differently. We hypothesized that the local economy sur-

rounding a military base may differ from the local economy more broadly defined. In particular, even though a base might be local in a rural area, the base might form its own micro-economy. Military wives might have access to job opportunities on military bases, many of which are civil service jobs. Civil service jobs are well-known for being secure and somewhat immune to business cycle fluctuations. In addition, military wives might have jobs in the immediate area—jobs that might be stabilized by a reliable flow of federal funds to the base to support operations, maintenance, and personnel.

In sum, a cyclical increase in the state unemployment rate may reduce or increase labor supply depending on whether the discouraged-worker effect or the added-worker effect dominates. Also, it could reduce earnings if wage growth is slower as the economy slows and unemployment increases, yet it could be associated with higher earnings if lower-wage workers are dis-employed. Further, these labor supply effects should be smaller for military wives, for whom we expect no added-worker or discouraged-worker effect. The wage of working military wives should be subject to the same cyclical forces as for civilian wives; however, the cyclical effects may be weaker if military wives tend to work in micro-economies around bases that have a stable flow of funds from the federal government. We examine the evidence related to these hypotheses in this section. Table 5.6 shows the estimated effect of a 1 percentage point increase in the unemployment rate from one year to the next for military and civilian wives.

The findings for civilian wives suggest that the added-worker effect is dominant: The measures of labor supply increase. The size of the increase in the probability of work in the year and in the probability of working full-time is quite small. The effect on weeks of work is larger, though. For wives who are working, weeks are estimated to increase by half a week as the unemployment rises by a percentage point from one year to the next. This can occur if wives increase their labor supply in response to a decrease, or a threat of decrease, in their husbands' labor supply (e.g., layoff, decrease in weekly hours).

Table 5.6

Summary of Marginal Effect of a 1 Percentage Point Increase in the Unemployment Rate from One Year to the Next[a]

Model	Estimated Effect
Civilian wives	
Probability wife worked in year	0.0191**
Probability wife worked full-time	0.0046**
Weeks worked ($0 \leq$ weeks ≤ 52) [b]	0.6430**
Log (weekly earnings) worked part-time	0.0784**
Log (weekly earnings) worked full-time	0.0130
Military wives	
Probability wife worked in year	0.0036**
Probability wife worked full-time	–0.0744**
Weeks worked ($0 \leq$ weeks ≤ 52) [b]	–0.0685*
Log (weekly earnings) worked part-time	0.0571
Log (weekly earnings) worked full-time	–0.0537

NOTE: Null hypothesis for civilian wives was that unemployment coefficient was equal to 0. Null hypothesis for military wives was that the unemployment coefficient was equal to those of civilian wives.

[a]Regression results are in Appendix B.

[b]The figures are estimated effects on the tobit index function.

* = significant at .05; ** = significant at .01.

Moreover, there is an increase in the weekly wage of civilian wives who work part-time, though no wage effect for those who work full-time. The wage increase for part-time workers suggests a compositional change. Full-time workers are defined as those working at least 35 weeks per year and at least 35 hours per week. If these high-hours workers were laid off or terminated, they would tend not to have 35 weeks of work but they may have worked, say, 40 hours per week until they were laid off or terminated. As a result, they would have a relatively high weekly wage but would be counted among the part-time workers. This change in the composition of part-time workers would be reflected by an apparent increase in their wage. The increase would be a statistical artifact.

The lack of an increase for wives who work full-time is consistent with the notion of sticky wages. Employers do not want to increase the wage of full-time workers as business conditions worsen, and they do not want to decrease their wage. (As mentioned before, the wages are in constant, year 2000 dollars, so the lack of change in the

wage for full-time workers means that the real wage remained constant.)

The labor supply effects for military wives differ from those of civilian wives. There is practically no change in the probability of work in the year, and there is a decrease in the probability of working full-time and in weeks of work. The reduction in working full-time and in weeks of work suggests that the military wife is affected as one would expect a "primary" worker to be affected. In contrast to this, the added-worker and discouraged-worker hypotheses implicitly refer to the wife as a "secondary" worker, i.e., having a weaker attachment to the labor force, with the husband being the primary worker. The results for military wives also suggest a decrease in the wage of military wives who work full-time, but this effect is not statistically significant, whereas there was no decrease in the wage of civilian wives who work full-time. The wage change for wives who work part-time was the same for military and civilian wives; the wage increased, probably for the reasons discussed.

LOCATION EFFECTS

Given that many military installations are in rural areas and that military wives are often tied-movers, military wives are often seen as being isolated with relatively few labor market opportunities to pursue. Harrell (2000) discusses the social and economic problems facing junior enlisted wives in isolated rural communities, although she does not consider how these problems compare with those of their civilian counterparts. In this section, we examine how the labor force outcomes of military wives in rural areas compare with those of suburban military wives and how this comparison differs from the same comparison for civilian wives. As we discuss in more detail, a remarkable finding is that military wives in rural areas compare quite favorably to their suburban counterparts and more favorably than do civilian wives. In other words, military wives in rural areas appear better off in terms of labor force outcomes than do civilian wives with similar characteristics in rural areas.

Table 5.7 shows the estimated marginal effects of being in a rural area or, alternatively, in an urban area for military wives and for civilian wives. The comparison is with respect to being in a suburban

Table 5.7

Summary of Marginal Effects of Location[a]

Model	Estimated Effect (Relative to Suburban)	
	Urban	Rural
Civilian wives		
Probability of working	–0.0177**	0.0194**
Probability of working full-time	0.0105**	–0.0231**
Weeks worked ($0 \leq$ weeks ≤ 52)[b]	–1.0681**	0.1402**
Log (weekly earnings) working part-time	0.0255*	–0.2821**
Log (weekly earnings) working full-time	–0.03426**	–0.2803**
Military wives		
Probability of working	0.01166**	–0.0049**
Probability of working full-time	0.0404**	–0.0450**
Weeks worked ($0 \leq$ weeks ≤ 52)[b]	1.2275**	–1.1895**
Log (weekly earnings) working part-time	0.1391	0.0216**
Log (weekly earnings) working full-time	–0.0125	–0.0415**

NOTE: Null hypothesis for civilian wives was that the coefficient was equal to 0. Null hypothesis for military wives was that the coefficient was equal to those of civilian wives.

[a]Regression results are in Appendix B.

[b]The figures are estimated effects on the tobit index function.

* = significant at .05; ** = significant at .01.

area. All other variables are held at their sample mean values, and as before, we consider the effects of location on weeks worked, given weeks worked are positive.

Military wives who live in rural areas are slightly less likely to work than similar wives in suburban areas, while civilian wives who live in rural areas are slightly more likely to work. The net effect for civilian wives is that the number of weeks worked is slightly higher among those who live in rural areas. The net effect for military wives is that the number of weeks worked is slightly lower than that of military wives who live in suburban areas. However, in both cases, the magnitude of the change in weeks worked is quite small.

The most remarkable finding in Table 5.7 concerns the estimated marginal effect of location on weekly earnings. Consider first civilian wives who work full-time. Civilian wives who live in rural areas earn 28 percent less than their civilian counterparts who live in suburban

areas. In contrast, military wives who live in rural areas are estimated to earn only 4.2 percent less than suburban military wives. Therefore, although military wives in rural areas may have social and economic problems (Harrell, 2000), the analysis here suggests that the relative effect of living in rural areas is less adverse than it is for their civilian peers.

As for wives in urban areas, we find small differences in the weekly earnings relative to wives in suburban areas for civilian wives. For military wives, we find that urban wives have weekly part-time earnings that are 14 percent higher than suburban wives. However, this effect for urban military wives is not statistically significant.

The overall effects of location on the labor force outcomes of military wives will depend on how military families are distributed across location. Table 5.8 shows the distribution of civilian and military families across location, where the distributions are weighted to reflect the age, education, and race/ethnicity of military personnel. Contrary to the stereotypical view that military families are concentrated in rural areas, we see that military families are distributed across urban, suburban, and rural areas. Moreover, their distribution shows a fair degree of similarity to that of civilian families. The main difference between the distributions is that relatively more civilian families are suburban, and relatively more military families report location missing. Our conjecture about the high fraction of missing locations is that military families may have a permanent residential address different from the location of their current assignment. The permanent address may be where military families own a home or pay taxes.

About a quarter of the military families have missing location information in the CPS over the time frame of our analysis, while about a fifth of the civilian families have missing information. We find that most military families live in suburban areas. About 28 percent of military families live in the suburbs while about one-fifth of military families live in rural areas. It would be preferable if we could compute the distributions by branch of service. As noted by Wardynski (2000), Army bases are concentrated in rural areas, while Navy bases are concentrated in cities. Thus, the distributions would most likely appear different if we could identify branch of service in the CPS.

We can also discern that the location distribution does not vary much by age. By implication, it would be incorrect to think that young military families are much more likely to be found in rural areas. For example, among wives age 20 to 24, 22 percent live in rural areas, which is not much different from the 20 percent at age 30 to 34. The exception occurs for older military wives, age 40 to 44: Only 11 percent live in rural areas. Thus, at the highest age, and presumably highest rank, military members are less likely to be identified as living in a rural area.

Table 5.8

Distribution of Military and Civilian Families Across Locations, 1987–1999, by Age of Wife (Weighted Counts)

Group	Civilian	Military
Total		
Urban	0.22	0.24
Suburban	0.35	0.28
Rural	0.25	0.21
Missing	0.18	0.27
Age 20–24		
Urban	0.23	0.28
Suburban	0.29	0.21
Rural	0.29	0.22
Missing	0.18	0.29
Age 25–29		
Urban	0.23	0.23
Suburban	0.35	0.27
Rural	0.25	0.24
Missing	0.18	0.25
Age 30–34		
Urban	0.22	0.25
Suburban	0.36	0.28
Rural	0.24	0.20
Missing	0.18	0.27
Age 35–39		
Urban	0.21	0.22
Suburban	0.37	0.34
Rural	0.24	0.21
Missing	0.18	0.23
Age 40–44		
Urban	0.20	0.21
Suburban	0.38	0.38
Rural	0.23	0.11
Missing	0.18	0.31

Chapter Six

CONCLUSION

We began our analysis of military wives with an outlook shaped by recent studies on military wives. Harrell's (2000) ethnographic analysis described how young Army wives coped with financial stress, geographical isolation, social isolation, and separation of the wife's private life from her husband's professional life. She found impressionable women who along with their husbands were trying to find their way, and who were making their share of mistakes. These young families had trouble living within their means, avoiding indebtedness, and trying to get out of debt. Although her study could claim validity based on a large number of first-person interviews with repeat visits, it was limited to a particular subset of military wives and did not make comparisons to civilian wives. Wardynski's (2000) quantitative study of Army wives found that they earn less than civilian wives because many Army bases are in rural areas where jobs are scarce and wages are low. The wage decrement was greater for Army wives with a college education, presumably officers' wives. The findings led him to suggest that military wives be given a hiring preference for civil service jobs on or near military bases.

We think our work deepens understanding of the earnings of military wives. It encompasses military wives of all ages and in all services, and it looks in depth at their labor supply and wage experience over time. While we cannot say whether junior or senior military families must continually cope with financial stress, and we cannot describe the employment and wage opportunities around any particular military installation or within a given military service, we *can* describe the military wife's wage and labor supply: Was she employed during the year, was she employed full-time, and how many weeks did she

work? We can say how variables such as age, education, children, migration, location, and unemployment affect her labor supply and wage outcomes, and whether they trended over time. Also, recognizing that military wives work in the same local labor market as civilian wives, we can compare these outcomes and their determinants with those of civilian wives.

We found that military family earnings averaged about $10,500[1] less than the earnings of civilian families.[2] This may be larger than the actual difference because military families might not have included the tax advantage from the nontaxability of allowances and the value of the military health benefit. Neither of these items is visible, cash income. Using the $10,500 figure, we found that about half the difference in incomes came from the difference in wife earnings, i.e., the military wife earned about $5,400 less than the civilian wife. We traced this to several factors. Military wives were less likely to work during the year. When they worked, they worked fewer weeks per year, were less likely to work full-time (35 or more weeks and 35 or more hours per week), and worked slightly fewer hours per week. In addition, their weekly and hourly wages were lower. With our estimated models, we made specific estimates of the labor supply and wage outcomes for wives from military families and wives from comparable civilian families (see Table 5.1). We found that 74 percent of military wives worked during the year compared with 82 percent of civilian wives. Of those working, 48 percent of military wives worked full-time versus 59 percent of civilian wives. Military wives worked 37.6 weeks versus civilian wives' 40.9 weeks, or 3.3 weeks less. The weekly wage of military wives who worked full-time was $268, $40 less than the weekly wage of $308 for civilian wives. When we later took into account the fact that military wives moved more frequently and their moves were longer, we found that the difference in the frequency and length of (out-of-county) moves accounted for a 2.7-week difference in weeks of work. Therefore, the frequent movement of military families does much to explain why military wives have fewer weeks of work per year on average.

[1]Fiscal year 1999 dollars.

[2]Our samples of civilian and military families were each weighted to reflect the composition of the active-duty military population with respect to the husband's age, race, and education. Weights were constructed for each year of our CPS data.

We also found several differences in labor supply and wage patterns by age. The likelihood that the civilian wife worked during the year changes little with her age. For the military wife, it starts lower and falls still lower as the military wife grows older—and the decline is steeper for military wives with college education than for those with high school. Among wives who worked, military wives are less likely to work full-time, although the likelihood of full-time work rises more rapidly with age for military wives. Weeks of work are lower and rise less rapidly with age for the military wife than the civilian wife. Moreover, weeks of work and the likelihood of full-time work are lower for the military wife with college than for the military wife with high school. Finally, the wage of the military wife is lower at every age than the wage of the civilian wife, although the increase in wage with age is similar for military and civilian wives.

We think several broad concepts are useful in understanding these findings. First, the military families that remain in the military for longer careers are an increasingly selected population. We assume the career aspirations and earnings opportunities of the military wife influence the family's decision to remain in the military. Similarly, these factors may affect whether a woman chooses to become a military wife in the first place. Those women who believe it will be harder to achieve their career aspirations and find good job opportunities while their husbands are in the military will be less inclined to marry into the military or have their family remain in the military. This may help explain why the younger military wife, in comparison to the younger civilian wife, is less likely to work during the year, and why the likelihood of working declines with age among military wives. It may also help explain why full-time work is less likely among younger military wives versus younger civilian wives, namely, because these military wives have on average a lower interest in ("taste for") forging a strong attachment to the labor force.

We also found that the likelihood of full-time work rose more rapidly with age for military wives than for civilian wives, which suggests a second kind of selectivity. Among wives who remain in the military, those who initially choose to work during the year will include wives with weaker and stronger attachments to the labor force. As these wives age, those with a weaker attachment to the labor force will tend to withdraw from it. The remaining wives, having a stronger attachment, are increasingly likely to be full-time workers. Put differently,

only those military wives with the strongest attachment to the labor force are likely to remain in it over the long haul.

These two kinds of selectivity suggest interplay between tastes and opportunities. Suppose it is more difficult for a military wife to pursue a career in the labor market and find good job opportunities, and suppose husbands and wives have preferences for the military and preferences for work. Other things equal, wives who want a career and good job opportunities are more likely to induce their family to leave the military. But the family will not leave if its preference for the military is high enough to offset the assumed career cost to the wife. If the wife's taste for work is low and her forgone civilian opportunities are not much different from her military opportunities, then the military preference does not have to be high for the family to remain in the military. If the wife's taste for work is high, then even if her job opportunities as a military wife are worse than they are as a civilian wife, the family might remain in the military. This will occur if the military preference is high, and the wife, with her strong taste for work, will work full-time despite her worse opportunities. Thus, it is consistent to observe:

- lower taste for work among younger military wives than younger civilian wives and hence a lower probability of work during the year and a lower probability of full-time work among younger military wives versus younger civilian wives;
- exit from the military of wives who have a high taste for work and believe their career opportunities are better if their husbands are not in the military; and nevertheless
- an increase with age in the probability of full-time work among military wives who work.

Our findings suggest several reasons why it might be the case that military wives find it more difficult to pursue a career in the labor market and obtain good job opportunities. Perhaps the primary reason is the frequent movement of military families relative to civilian families. Frequent moves might induce the wife to spend less time in job search and to seek jobs with short training times. Employers, for their part, may recognize that military wives are willing to accept jobs with lower wages rather than continue searching for a higher-wage job. These jobs may tend to require short training and perhaps are

limited in their scope of responsibility and opportunity for career development. In other words, more frequent moves may support a lower-wage equilibrium.

Another factor is the demand the military places on the military member. We have suggested that the traditional model of labor supply could be extended to account for rigidity and uncertainty in the husband's schedule in the derivation of the wife's reservation wage and labor supply. Rigidity is meant to indicate that the family has little discretion in the husband's duty schedule, training and exercise schedule, and, as mentioned, PCS moves. Uncertainty comes from week-to-week variation in duties as well as the possibility of deployment. If the family has little control over the husband's schedule and it is marked with uncertainty and periodic migration, the family's best response may be for the wife to hold jobs that offer her flexibility when she works. These may be jobs that allow flexible hours and that can be started and stopped without much investment by either the wife or the employer.

Thus, relative to civilian families, military families may condition their family decisionmaking on more frequent change-of-station moves and on the rigidities and uncertainties of the military member's schedule. This idea offers a means of resolving what appeared to be a paradox in the findings when viewed from the perspective of traditional labor supply theory. If the military husband's schedule caused the military wife to have a higher reservation wage, then we would expect her to have a lower probability of employment, lower probability of working full-time, and fewer weeks of work given that she worked—all of which we found. With a higher reservation wage, she would also be expected to have a higher wage when employed—which we did not find. We suspect that the resolution to this paradox lies in the idea of a lower-wage equilibrium, as described. Our wage findings appear to support this view. The results show that the military wife earns less than does the civilian wife at every age. This is consistent with less investment in job search and less training on the job. It may also be consistent with hours flexibility on the job; such jobs may pay a lower wage, other things equal.

We did not find support for two commonly held views. The first is that on-the-job investments in human capital are lower for military wives than for civilian wives. If true, this would lead to a widening

gap between the hourly wage of the civilian wife and the military wife. But we found that hourly wage rose with age at the same rate for military wives as for civilian wives. The second view is that military wives earn less because military bases are typically in low-wage, rural areas. Our evidence did not support the notion that military wives are concentrated in rural areas. Furthermore, although it is true that military wives earn less than civilian wives, we did not find that military wives in rural areas earned a lot less than those in suburban or urban areas. In contrast, we found, as one might expect, that civilian wives in rural areas earned more than 25 percent less than do civilian wives in suburban and urban areas.

The presence of young children seems to add to the burden on military wives of an unpredictable and rigid military schedule. We found that the presence of children is associated with reduced labor supply for both military and civilian wives. However, the reduction is greater for military wives when the children are young (up through age 5). Yet the reduction is smaller for military wives when the children are not young (between the ages of 6 and 17). Interestingly, the presence of children between ages 6 and 17 is associated with lower wives' wages, but the reduction for military wives is not statistically different from the reduction for civilian wives. That is, the negative effect on wages of having older children is about the same for both military and civilian wives.

We find that the negative effect of moving on labor supply is actually smaller for military wives than for similar civilian wives moving a similar distance. This means that when judged in terms of reduced labor supply or reduced wages for a given length of move, military wives are more efficient movers than are civilian wives. Because military wives are more likely to move longer distances, however, their move is more likely to involve a job change and a larger reduction in labor supply. As a result, the overall effect of moving is more negative for military wives.

DIRECTIONS FOR FUTURE RESEARCH

While our analysis paints a picture of the wife's role as an earner in military families, there are many questions we could not address with our data. It would have been helpful to have precise geographic information on where a family is living and to know where the mem-

ber is based. A more precise characterization of the "local" labor market would have been valuable, as would information about the availability of child care generally but especially including on-base care. We did not have a service identifier, so we could not examine whether the overall results differed by service. We had no direct information about military wives' career aspirations and no detailed knowledge about the jobs they held and occupations they worked in, nor did we know about the labor supply and wages of military wives *after* their family left military service. We also could not examine the role of military family support activities in sustaining the military family and providing counsel and guidance about housing, family budgeting, health care, and schools. Finally, and very much to the point, we could not analyze how the wife's employment and earnings opportunities affected the retention, morale, and performance of the military member. These topics await richer data and future research.

Appendix A

DATA SOURCES

We employ data on military and civilian family income and labor force participation from the March supplement of the Current Population Survey (CPS) for years 1987 to 1999. The early endpoint for this series is driven by the availability of PERSTEMPO data to be described below and the later endpoint is the most recent year for which we have both CPS and PERSTEMPO data. We drew data on annual earnings, labor force participation, and demographics for a nationwide sample of households, including those with members of the armed services.

We used data for noninstitutionalized married couples in primary families where the male was at least 17 years of age. The CPS makes a distinction between "primary" families and "secondary" families when multiple families reside in a single household. To eliminate concern over related families pooling resources and acting as a single economic unit, we restricted our analysis to primary families.

Because of our fundamental interest in military and civilian families, we created a variable indicating whether or not a primary family is a military family. We define a military family as a couple in which the male is identified as being a member of the armed services. Because of low sample sizes, we excluded from our analysis sample those military families in which the female spouse is a member of the armed services. We also excluded the small number of dual-military couples as we are interested in the civilian labor force opportunities of military wives.

There are considerable demographic differences between members of the armed services and the male civilian population represented

by the CPS. The main reason is that the military population tends to be young relative to the general population. In addition, because of sample frame and sampling variability (sampling error), both the armed service members and civilians in the CPS differ from the universe of armed service members generally.[1] In order to compare outcomes between civilian and military families, we created weights to control for these demographic differences. To construct these weights we used a second data source, the Proxy PERSTEMPO data file,[2] which contains basic demographics for all active-duty service members from December 1987 to September 1999.

From PERSTEMPO data, we obtained counts of males in the armed services by year, age, race/ethnicity, and education categories. Counts in the same categories were obtained separately for males in the civilian and military samples in the CPS. We then formed ratios of cell counts from the PERSTEMPO data to counts from the CPS data to construct the appropriate weights. The ratios for the CPS civilian and military samples were formed independently so that each group would resemble the actual population in the armed services when weighted. Constructing weights in this fashion ensures demographic comparability between the military and civilian CPS samples and the armed services at large. Cells for which there were no observations from the PERSTEMPO data (and hence from the actual military population) received a weight of 0. Combining the PERSTEMPO and CPS samples left 13 years of usable of data, 1987 to 1999, for analysis purposes. Our descriptive tabulations employ these weights (unless specifically noted otherwise), as do our non-OLS (ordinary least squares) regressions (probit, tobit, Heckman).

For the years 1987 to 1999, the CPS contains a total of 1,112,930 adults over the age of 16. Since our unit of analysis is a married couple, we collapsed information for both spouses into a single record.

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[1]One reason for these differences among military members in the CPS and the military at large (not just married members) is the fact that the CPS includes military households only by virtue of living with a civilian who is 16 years of age or older. Military families are not part of the CPS sample frame. However, the CPS does sample family housing on base, according to conversations with persons at the CPS Branch at the Census Bureau in August 2000.

[2]The Proxy PERSTEMPO data set is an extract of the Active Duty Master file, an administrative data set containing information for every active-duty member of the armed forces.

Adding the restrictions on marriage and family type mentioned above, we were left with a total of 5,831 military couples and 360,154 civilian couples in our analysis file. This results in a sample of 448 military families per year on average.

We used annual unemployment and inflation data from the Bureau of Labor Statistics. Annual statewide unemployment rates were merged to the CPS sample based on the residences of the survey respondents. All dollar amounts were converted to year 2000 dollars using the national seasonally adjusted Consumer Price Index.

Appendix B

SUMMARY STATISTICS AND REGRESSION COEFFICIENTS

Table B.1

Summary Statistics of Characteristics of All Civilian and Military Families

	Re-weighted		Original Weighting	
Variables	Civilian	Military	Civilian	Military
Number of observations	360154	5831	360154	5831
Wife's annual earnings	15490.87	10024.35		
Wife's annual earnings, less than high school	6088.70	4693.50		
Wife's annual earnings, high school graduate or some college	13406.26	9083.75		
Wife's annual earnings, college graduate	25775.71	15940.22		
Wife's hours worked per year	1292.91	996.58	1109.65	982.24
Log of wife's weekly wage	5.74	5.52	5.77	5.53
Wife works	0.80	0.72	0.68	0.71
Wife works part-time	0.30	0.37	0.25	0.37
Wife works full-time	0.50	0.35	0.42	0.34
Wife's weeks worked per year	34.92	27.57	30.32	27.28
Log of wife's hourly wage	2.23	2.06	2.29	2.07
Age of wife	30.83	30.68	43.87	31.44
Wife's race is black	0.17	0.15	0.05	0.11
Wife's race is other	0.04	0.09	0.04	0.09
Wife did not finish high school	0.07	0.06	0.13	0.06
Wife finished college	0.21	0.17	0.22	0.20
Husband did not finish high school	0.01	0.01	0.13	0.01

Table B.1—continued

Variables	Re-weighted		Original Weighting	
	Civilian	Military	Civilian	Military
Husband finished college	0.20	0.20	0.28	0.26
Age of husband	31.87	31.65	46.34	32.52
Husband's race is black	0.18	0.18	0.05	0.13
Husband's race is other	0.04	0.04	0.04	0.04
Number of children younger than 18	1.39	1.47	0.98	1.45
Presence of children younger than 6	0.49	0.48	0.24	0.46
Presence of children younger than 18	0.73	0.75	0.51	0.74
Family moved within the same county since the previous year	0.15	0.12	0.07	0.12
Family moved to a different county since the previous year	0.04	0.03	0.02	0.03
Family moved to a different state since the previous year	0.01	0.03	0.01	0.03
Family moved to a different census division since previous year	0.01	0.03	0.00	0.03
Family moved to a different census region since previous year	0.02	0.11	0.01	0.11
Family moved from abroad since the previous year	0.00	0.04	0.00	0.04
Family has not moved in the past five years	0.02	0.01	0.05	0.01
Family moved within the same county in the past five years	0.03	0.01	0.02	0.01
Family moved to a different county in the past five years	0.01	0.00	0.01	0.01
Family moved to a different state in the past five years	0.00	0.01	0.00	0.01
Family moved to a different census division in past five years	0.00	0.01	0.00	0.01
Family moved to a different census region in the past five years	0.00	0.02	0.00	0.03
Family moved from abroad in the past five years	0.00	0.01	0.00	0.01
Family lives in an urban area	0.22	0.23	0.19	0.23
Family lives in a rural area	0.25	0.21	0.26	0.20

Table B.1—continued

Variables	Re-weighted		Original Weighting	
	Civilian	Military	Civilian	Military
MSA (Metropolitan Statistical Area) not reported	0.18	0.27	0.18	0.28
Lives in the Northeast	0.20	0.07	0.22	0.08
Lives in the North Central/ Midwest	0.24	0.13	0.24	0.14
Lives in the West	0.22	0.42	0.23	0.41
Change in unemployment rate from previous year	–0.02	–0.02	–0.02	–0.02
Wife is a federal employee	0.02	0.10	0.02	0.09

NOTE: The demographic characteristics of husbands will be nearly identical for both groups because of the use of weights.

Table B.2

Summary Statistics of Characteristics for Civilian and Military Families with Wives Who Worked in Year

Variable	Re-weighted		Original Weighting	
	Civilian	Military	Civilian	Military
Number of observations	243720	4145	243720	4145
Wife's annual earnings	19521.03	14045.80		
Wife's annual earnings, less than high school	10386.44	8724.32		
Wife's annual earnings, high school graduate or some college	16872.00	12624.94		
Wife's annual earnings, college graduate	29976.44	21329.53		
Wife's hours worked per year	1618.83	1387.90	1639.77	1381.77
Log of wife's weekly wage	5.74	5.52	5.77	5.53
Wife works	1.00	1.00	1.00	1.00
Wife works part-time	0.37	0.52	0.37	0.52
Wife works full-time	0.63	0.48	0.63	0.48
Wife's weeks worked per year	43.73	38.40	44.80	38.38
Log of wife's hourly wage	2.23	2.06	2.29	2.07
Age of wife	30.85	30.52	40.56	31.19
Wife's race is black	0.17	0.17	0.06	0.12
Wife's race is other	0.04	0.08	0.04	0.08
Wife did not finish high school	0.05	0.04	0.09	0.04
Wife finished college	0.23	0.18	0.26	0.21
Husband did not finish high school	0.00	0.01	0.11	0.01
Husband finished college	0.20	0.19	0.30	0.25
Age of husband	31.83	31.55	43.03	32.33
Husband's race is black	0.19	0.20	0.06	0.14
Husband's race is other	0.03	0.03	0.04	0.04
Number of children younger than 18	1.27	1.32	1.03	1.30
Presence of children younger than 6	0.45	0.41	0.24	0.39
Presence of children younger than 18	0.69	0.70	0.55	0.69
Family moved within the same county since the previous year	0.15	0.13	0.08	0.12
Family moved to a different county since the previous year	0.04	0.03	0.02	0.03

Table B.2—continued

Variable	Re-weighted		Original Weighting	
	Civilian	Military	Civilian	Military
Family moved to a different state since the previous year	0.01	0.03	0.01	0.03
Family moved to a different census division since previous year	0.01	0.03	0.00	0.03
Family moved to a different census region since previous year	0.01	0.12	0.01	0.11
Family moved from abroad since the previous year	0.00	0.04	0.00	0.04
Family has not moved in the past five years	0.02	0.01	0.04	0.01
Family moved within the same county in the past five years	0.03	0.01	0.02	0.01
Family moved to a different county in the past five years	0.01	0.00	0.01	0.01
Family moved to a different state in the past five years	0.00	0.01	0.00	0.01
Family moved to a different census division in past five years	0.00	0.01	0.00	0.01
Family moved to a different census region in the past five years	0.00	0.02	0.00	0.03
Family moved from abroad in the past five years	0.00	0.01	0.00	0.01
Family lives in an urban area	0.22	0.24	0.18	0.23
Family lives in a rural area	0.25	0.21	0.26	0.21
MSA (Metropolitan Statistical Area) not reported	0.18	0.27	0.18	0.27
Lives in the Northeast	0.19	0.07	0.22	0.08
Lives in the North Central/ Midwest	0.25	0.13	0.25	0.14
Lives in the West	0.21	0.43	0.23	0.42
Change in unemployment rate from previous year	–0.02	–0.02	–0.02	–0.02
Wife is a federal employee	0.02	0.12	0.02	0.12

NOTE: The demographic characteristics of husbands will be nearly identical for both groups because of the use of weights.

Table B.3

Wife's Labor Supply Regressions

	Weeks Worked Tobit	Probability Wife Worked Full-Time	Probability Wife Worked in the Year
Civilian families			
	–46.74920 **	–2.18230 **	0.04550 **
	(0.39120)	(0.01070)	(0.01050)
Civilian wife variables			
If wife's education = High school or some college (HSSC)			
Age	6.45660 **	0.14810 **	0.09750 **
	(0.02370)	(0.00072)	(0.00065)
Age-squared	–0.08960 **	–0.00195 **	–0.00145 **
	(0.00030)	(0.00001)	(0.00001)
Black	5.46220 **	0.20120 **	0.11890 **
	(0.12990)	(0.00344)	(0.00346)
Other	–0.81740 **	0.10280 **	–0.02220 **
	(0.13140)	(0.00354)	(0.00341)
Time	0.48580 **	0.00704 **	0.00171 **
	(0.00570)	(0.00015)	(0.00015)
If wife's education < HSSC: difference from HSSC coefficient			
Less than high school	–40.77210 **	–0.97800 **	–1.10880 **
	(0.77820)	(0.02560)	(0.01900)
Age	1.16940 **	0.04260 **	0.04000 **
	(0.05080)	(0.00167)	(0.00124)
Age-squared	–0.01870 **	–0.00056 **	–0.00062 **
	(0.00080)	(0.00003)	(0.00002)
Black	–7.55220 **	–0.13190 **	–0.19120 **
	(0.17990)	(0.00553)	(0.00434)
Other	2.03040 **	0.09970 **	0.01810 **
	(0.29040)	(0.00907)	(0.00687)
Time	–0.30470 **	–0.00402 **	–0.00037
	(0.01780)	(0.00054)	(0.00043)

Table B.3—continued

	Weeks Worked Tobit	Probability Wife Worked Full-Time	Probability Wife Worked in the Year
If wife's education = Col: difference from HSSC coefficient			
College	16.71820 **	0.67390 **	0.82990 **
	(0.76370)	(0.02150)	(0.02220)
Age	–0.68160 **	–0.03590 **	–0.03450 **
	(0.04410)	(0.00126)	(0.00126)
Age-squared	0.01310 **	0.00057 **	0.00050 **
	(0.00060)	(0.00002)	(0.00002)
Black	1.07040 **	0.10990 **	–0.00220
	(0.13390)	(0.00353)	(0.00394)
Other	0.75100 **	0.04580 **	–0.09890 **
	(0.22140)	(0.00597)	(0.00576)
Time	0.52900 **	0.00657 **	0.01600 **
	(0.01300)	(0.00033)	(0.00037)
Husband variables			
Less than high school	–3.23050 **	0.04730 **	–0.06470 **
	(0.35620)	(0.01040)	(0.00882)
College	–5.98070 **	–0.14870 **	–0.11460 **
	(0.08650)	(0.00227)	(0.00230)
Age	0.83130 **	0.03040 **	–0.01030 **
	(0.02600)	(0.00072)	(0.00070)
Age-squared	–0.01560 **	–0.00054 **	0.00003 **
	(0.00040)	(0.00001)	(0.00001)
Black	3.36500 **	0.10430 **	0.09400 **
	(0.12320)	(0.00327)	(0.00327)
Other	–2.80440 **	0.12660 **	–0.09390 **
	(0.12340)	(0.00333)	(0.00319)
Time × Less than high school	–0.96460 **	–0.00394	–0.02340 **
	(0.15500)	(0.00460)	(0.00379)
Time × College	–0.45690 **	–0.00333 **	–0.01200 **
	(0.01300)	(0.00034)	(0.00035)

Table B.3—continued

	Weeks Worked Tobit	Probability Wife Worked Full-Time	Probability Wife Worked in the Year
Children variables			
Children younger than 18	−9.91840 **	−0.20090 **	−0.18610 **
	(0.02190)	(0.00062)	(0.00055)
Children younger than 6	−16.50920 **	−0.13220 **	−0.36690 **
	(0.04770)	(0.00124)	(0.00126)
Number of children	−2.81220 **	−0.16680 **	−0.02910 **
	(0.06460)	(0.00171)	(0.00175)
Moved variables			
Within past year			
Same county	−1.83500 **	−0.01950 **	0.04690 **
	(0.05010)	(0.00132)	(0.00136)
Different county	−9.08250 **	−0.16600 **	0.01360 **
	(0.08330)	(0.00220)	(0.00235)
Different state	−16.59580 **	−0.34460 **	−0.07810 **
	(0.13630)	(0.00372)	(0.00378)
Different division	−15.90520 **	−0.26390 **	−0.02200 **
	(0.20500)	(0.00561)	(0.00581)
Different region	−24.28490 **	−0.46830 **	−0.13910 **
	(0.12980)	(0.00362)	(0.00358)
From abroad	−49.69230 **	−0.88040 **	−0.85930 **
Within past 5 years			
Non-movers	2.10420 **	0.00309	0.01940 **
	(0.11170)	(0.00290)	(0.00288)
Same county	2.36190 **	−0.01650 **	0.05680 **
	(0.10480)	(0.00271)	(0.00280)
Different county	−2.60920 **	−0.06880 **	0.05580 **
	(0.16970)	(0.00440)	(0.00472)
Different state	−11.02480 **	−0.12110 **	−0.16440 **
	(0.30400)	(0.00825)	(0.00807)
Different division	−12.88530 **	−0.28140 **	−0.10620 **
	(0.38620)	(0.01030)	(0.01050)

Table B.3—continued

	Weeks Worked Tobit	Probability Wife Worked Full-Time	Probability Wife Worked in the Year
Different region	–14.35680 **	–0.25820 **	–0.03240 **
	(0.25600)	(0.00683)	(0.00717)
From abroad	–36.10150 **	–0.40780 **	–0.67890 **
	(0.38350)	(0.01190)	(0.00913)
Location			
Urban	–2.72000 **	0.02760 **	–0.06350 **
	(0.04670)	(0.00125)	(0.00122)
Rural	0.35690 **	–0.06050 **	0.07180 **
	(0.04460)	(0.00117)	(0.00119)
Unknown	2.14950 **	–0.05020 **	0.09640 **
	(0.04930)	(0.00128)	(0.00132)
Northeast	–3.54460 **	–0.17820 **	–0.08820 **
	(0.04900)	(0.00130)	(0.00128)
North Central/Midwest	4.00120 **	–0.10410 **	0.12400 **
	(0.04600)	(0.00120)	(0.00124)
West	–2.55570 **	–0.18890 **	0.00119
	(0.04760)	(0.00127)	(0.00126)
Economic conditions			
Δ in unemployment rate	1.63730 **	0.01460 **	0.06950 **
	(0.11920)	(0.00314)	(0.00316)
Federal employee status			
Federal employee	35.80430 **	0.53330 **	
	(0.14510)	(0.00342)	
Military families[a]			
Intercept	87.58400 **	1.25200 **	1.29640 **
	(0.54940)	(0.01530)	(0.01450)

Table B.3—continued

	Weeks Worked Tobit	Probability Wife Worked Full-Time	Probability Wife Worked in the Year
Military wife variables			
If wife's education = High school or some college (HSSC)			
Age	–5.38030 **	–0.01660 **	–0.11370 **
	(0.03530)	(0.00102)	(0.00093)
Age-squared	0.07060 **	0.00034 **	0.00135 **
	(0.00050)	(0.00002)	(0.00001)
Black	–6.69900 **	–0.27870 **	–0.03140 **
	(0.15870)	(0.00427)	(0.00422)
Other	–9.68010 **	–0.26490 **	–0.18130 **
	(0.15100)	(0.00415)	(0.00388)
Time	0.50020 **	0.01580 **	0.00453 **
	(0.00780)	(0.00021)	(0.00021)
If wife's education < HSSC: difference from HSSC coefficient			
Less than high school	38.73610 **	–0.11560 **	1.54930 **
	(1.14700)	(0.03930)	(0.02820)
Age	–1.16950 **	0.00295	–0.07230 **
	(0.07470)	(0.00257)	(0.00181)
Age-squared	0.00330 **	–0.00005	0.00075 **
	(0.00120)	(0.00004)	(0.00003)
Black	10.68680 **	0.65910 **	–0.05500 **
	(0.29650)	(0.00980)	(0.00702)
Other	12.23320 **	–0.17810 **	0.30690 **
	(0.35180)	(0.01120)	(0.00833)
Time	–1.45500 **	–0.01190 **	–0.04000 **
	(0.02770)	(0.00093)	(0.00066)
If wife's education = Col: difference from HSSC coefficient			
College	–38.07710 **	–1.83120 **	0.85340 **
	(1.22840)	(0.03370)	(0.03550)

Table B.3—continued

	Weeks Worked Tobit	Probability Wife Worked Full-Time	Probability Wife Worked in the Year
Age	2.77500 **	0.12640 **	–0.03980 **
	(0.07190)	(0.00199)	(0.00203)
Age-squared	–0.04910 **	–0.00210 **	0.00042 **
	(0.00100)	(0.00003)	(0.00003)
Black	5.23540 **	0.02660 **	–0.04640 **
	(0.19080)	(0.00508)	(0.00537)
Other	5.41690 **	0.21970 **	0.09610 **
	(0.27700)	(0.00767)	(0.00712)
Time	–0.32490 **	0.00385 **	–0.01580 **
	(0.01850)	(0.00050)	(0.00050)
Husband variables			
Less than high school	22.70830 **	0.05230 **	0.77920 **
	(0.49500)	(0.01430)	(0.01350)
College	–1.15570 **	–0.05940 **	–0.09970 **
	(0.11990)	(0.00332)	(0.00311)
Age	–1.67680 **	–0.10180 **	0.01530 **
	(0.03790)	(0.00106)	(0.00100)
Age-squared	0.03420 **	0.00165 **	0.00008 **
	(0.00060)	(0.00002)	(0.00001)
Black	4.25660 **	0.17750 **	0.06340 **
	(0.14810)	(0.00398)	(0.00392)
Other	10.41400 **	0.23080 **	0.13200 **
	(0.15760)	(0.00439)	(0.00403)
Time × Less than high school	–4.45990 **	–0.09770 **	–0.18420 **
	(0.22130)	(0.00677)	(0.00559)
Time × College	–0.58580 **	–0.01450 **	–0.00151 **
	(0.01810)	(0.00050)	(0.00047)
Children variables			
Children younger than 18	2.81990 **	0.01540 **	0.05250 **
	(0.03060)	(0.00090)	(0.00076)
Children younger than 6	–8.05530 **	–0.07240 **	–0.24400 **
	(0.06570)	(0.00179)	(0.00171)

Table B.3—continued

	Weeks Worked Tobit	Probability Wife Worked Full-Time	Probability Wife Worked in the Year
Number of children	4.27190 **	0.07920 **	0.05630 **
	(0.08950)	(0.00245)	(0.00240)
Moved variables			
Within past year			
Same county	1.29010 **	0.01380 **	0.01950 **
	(0.07230)	(0.00197)	(0.00193)
Different county	2.14720 **	0.16920 **	–0.04880 **
	(0.12880)	(0.00361)	(0.00345)
Different state	7.79530 **	0.17400 **	0.04710 **
	(0.16650)	(0.00463)	(0.00453)
Different division	3.46190 **	–0.04980 **	0.17720 **
	(0.22670)	(0.00627)	(0.00641)
Different region	9.21580 **	0.15250 **	0.13240 **
	(0.14000)	(0.00394)	(0.00384)
From abroad	21.42300 **	0.14450 **	0.61810 **
	(0.25860)	(0.00863)	(0.00617)
Within past 5 years			
Non-movers	22.34760 **	0.12240 **	0.39320 **
	(0.23460)	(0.00587)	(0.00624)
Same county	3.13510 **	0.09530 **	0.01640 **
	(0.19030)	(0.00505)	(0.00494)
Different county	–2.60100 **	0.06170 **	–0.17630 **
	(0.29850)	(0.00810)	(0.00791)
Different state	2.19780 **	–0.02340 *	0.31100 **
	(0.34540)	(0.00954)	(0.00916)
Different division	–0.62870	–0.26680 **	–0.08720 **
	(0.43630)	(0.01200)	(0.01170)
Different region	1.95540 **	–0.16970 **	0.03910 **
	(0.27690)	(0.00749)	(0.00767)
From abroad	22.97510 **	0.32290 **	0.50770 **
	(0.41500)	(0.01270)	(0.00995)

Table B.3—continued

	Weeks Worked Tobit	Probability Wife Worked Full-Time	Probability Wife Worked in the Year
Location			
Urban	5.84580 **	0.08020 **	0.10680 **
	(0.06540)	(0.00180)	(0.00170)
Rural	−3.38600 **	−0.05650 **	−0.08950 **
	(0.06520)	(0.00179)	(0.00171)
Unknown	−5.27380 **	−0.03010 **	−0.16210 **
	(0.06690)	(0.00182)	(0.00176)
Northeast	2.89380 **	−0.10950 **	0.11020 **
	(0.08270)	(0.00233)	(0.00212)
North Central/Midwest	−0.97250 **	−0.05540 **	0.02020 **
	(0.07090)	(0.00194)	(0.00186)
West	5.18650 **	0.05170 **	0.15080 **
	(0.06110)	(0.00167)	(0.00160)
Economic conditions			
Δ in unemployment rate	−1.81180 **	−0.25270 **	−0.05630 **
	(0.16010)	(0.00440)	(0.00419)
Federal employee status			
Federal employee	−6.22270 **	−0.34830 **	
	(0.15640)	(0.00372)	
Scale	48.58490 **		
	(0.01470)		
Log likelihood	−52923983	−10553641	−11218271

[a]Coefficients for military families are the *difference between* the military coefficient and the corresponding civilian coefficient.

** = significant at .01.

Table B.4

Wife's Weekly Wage Regressions

	All Wives Who Worked	Wives Who Worked Part-Time	Wives Who Worked Full-Time
Civilian families			
	4.49720 **	4.55000 **	4.97720 **
	(0.03680)	(0.06549)	(0.03883)
Civilian wife variables			
If wife's education = High school or some college (HSSC)			
Age	0.07195 **	0.04060 **	0.05093 **
	(0.00242)	(0.00429)	(0.00251)
Age-squared	–0.00090 **	–0.00054 **	–0.00058 **
	(0.00003)	(0.00005)	(0.00003)
Black	0.06193 *	0.10790	–0.01675
	(0.02943)	(0.06298)	(0.02694)
Other	0.07037 **	0.12480 **	–0.01338
	(0.01894)	(0.03792)	(0.01787)
Time	0.01126 **	0.01109 **	0.00407 **
	(0.00083)	(0.00159)	(0.00081)
If wife's education < HSSC: difference from HSSC coefficient			
Less than high school	0.03180	–0.02647	0.15148
	(0.08492)	(0.13006)	(0.10474)
Age	–0.01188 **	–0.00163	–0.01950 **
	(0.00414)	(0.00633)	(0.00513)
Age-squared	0.00013 **	0.00000	0.00022 **
	(0.00005)	(0.00007)	(0.00006)
Black	–0.13038 **	–0.20449 **	0.04977
	(0.03313)	(0.06084)	(0.03333)
Other	–0.00028	0.00002	0.00692
	(0.03742)	(0.07064)	(0.03657)
Time	–0.00454	–0.00290	–0.00749 **
	(0.00235)	(0.00415)	(0.00240)

Table B.4—continued

	All Wives Who Worked	Wives Who Worked Part-Time	Wives Who Worked Full-Time
If wife's education = Col: difference from HSSC coefficient			
College	–0.05207	0.28855 *	–0.02787
	(0.06829)	(0.12671)	(0.07027)
Age	0.02118 **	0.00109	0.01795 **
	(0.00325)	(0.00584)	(0.00343)
Age-squared	–0.00022 **	–0.00003	–0.00017 **
	(0.00004)	(0.00006)	(0.00004)
Black	0.06211 **	0.14633 *	0.01458
	(0.02346)	(0.06362)	(0.02011)
Other	–0.05728 *	–0.10303	–0.03517
	(0.02428)	(0.05314)	(0.02206)
Time	0.00416 **	0.00465	0.00401 **
	(0.00157)	(0.00315)	(0.00149)
Husband variables			
Less than high school	–0.01822	–0.02492	–0.05463 **
	(0.01350)	(0.02497)	(0.01333)
College	0.00188	0.00108	0.07807 **
	(0.01053)	(0.01962)	(0.01035)
Age	0.00316	0.00046	0.00372
	(0.00212)	(0.00386)	(0.00212)
Age-squared	–0.00006 **	–0.00002	–0.00006 **
	(0.00002)	(0.00004)	(0.00002)
Black	0.06179 *	0.06231	0.00288
	(0.02801)	(0.05936)	(0.02572)
Other	0.02557	0.00983	–0.04673 **
	(0.01741)	(0.03482)	(0.01644)
Time × Less than high school	–0.00956 **	–0.00315	–0.00995 **
	(0.00219)	(0.00414)	(0.00213)
Time × College	0.00259	0.00477	0.00292 *
	(0.00152)	(0.00291)	(0.00147)

Table B.4—continued

	All Wives Who Worked	Wives Who Worked Part-Time	Wives Who Worked Full-Time
Children variables			
Children younger than 18	–0.13769 **	–0.10928 **	–0.05372 **
	(0.00337)	(0.00569)	(0.00360)
Children younger than 6	0.01853 **	0.04606 **	0.08017 **
	(0.00667)	(0.01218)	(0.00669)
Number of children	–0.00536	0.05158 **	–0.00687
	(0.00806)	(0.01551)	(0.00797)
Moved variables			
Within past year			
Same county	–0.01692	0.02790	–0.03738 **
	(0.00870)	(0.01662)	(0.00841)
Different county	0.02165	0.15113 **	0.00504
	(0.01467)	(0.02657)	(0.01468)
Different state	–0.00469	0.18163 **	–0.01111
	(0.02337)	(0.04015)	(0.02433)
Different division	–0.00301	0.24748 **	–0.00055
	(0.03505)	(0.05645)	(0.03880)
Different region	–0.03554	0.24854 **	–0.05300 *
	(0.02274)	(0.03650)	(0.02531)
From abroad	–0.34217 **	–0.06435	–0.22945 **
Within past 5 years			
Non-movers	–0.03338 **	–0.03094	–0.01983
	(0.01089)	(0.02070)	(0.01055)
Same county	–0.00905	0.00609	–0.01979
	(0.01624)	(0.03142)	(0.01559)
Different county	0.01640	0.06702	0.00585
	(0.02638)	(0.05085)	(0.02535)
Different state	–0.00536	0.14038	–0.05216
	(0.04804)	(0.09133)	(0.04656)
Different division	–0.12364 *	0.01097	–0.07734
	(0.05961)	(0.10357)	(0.06144)
Different region	–0.12506 **	0.02487	–0.09115 *
	(0.03897)	(0.06743)	(0.04031)

Table B.4—continued

	All Wives Who Worked	Wives Who Worked Part-Time	Wives Who Worked Full-Time
From abroad	–0.37124 **	–0.26214 *	–0.24099 **
	(0.06818)	(0.11197)	(0.07392)
Location			
Urban	0.00533	0.02549 *	–0.03426 **
	(0.00641)	(0.01259)	(0.00610)
Rural	–0.28991 **	–0.28215 **	–0.28026 **
	(0.00572)	(0.01071)	(0.00561)
Unknown	–0.12301 **	–0.10698 **	–0.12996 **
	(0.00635)	(0.01202)	(0.00617)
Northeast	0.06668 **	0.12630 **	0.11492 **
	(0.00633)	(0.01231)	(0.00608)
North Central/Midwest	–0.05507 **	–0.04039 **	0.00294
	(0.00605)	(0.01176)	(0.00581)
West	–0.03036 **	0.00681	0.02943 **
	(0.00628)	(0.01200)	(0.00610)
Economic conditions			
Δ in unemployment rate	0.05189 **	0.07841 **	0.01301
	(0.01570)	(0.02963)	(0.01529)
Federal employee status			
Federal employee	0.48013 **	0.36061 **	0.32731 **
	(0.01468)	(0.04148)	(0.01241)
Military families[a]			
Intercept	–0.59396	–0.70958	–0.28138
	(0.30757)	(0.46749)	(0.37834)
Military wife variables			
If wife's education = High school or some college (HSSC)			
Age	0.00591	0.02102	–0.00479
	(0.02334)	(0.04268)	(0.02484)

Table B.4—continued

	All Wives Who Worked	Wives Who Worked Part-Time	Wives Who Worked Full-Time
Age-squared	–0.00006	–0.00028	0.00003
	(0.00033)	(0.00063)	(0.00034)
Black	–0.07498	–0.02498	–0.01422
	(0.10750)	(0.17694)	(0.11957)
Other	–0.06123	–0.00349	–0.03124
	(0.08285)	(0.13243)	(0.09405)
Time	–0.00000	0.00294	–0.00412
	(0.00589)	(0.00976)	(0.00639)
If wife's education < HSSC: difference from HSSC coefficient			
Less than high school	–0.78413	–0.82852	–0.65073
	(0.84471)	(1.25452)	(1.24065)
Age	0.04537	0.04486	0.03321
	(0.05433)	(0.08351)	(0.07266)
Age-squared	–0.00064	–0.00046	–0.00057
	(0.00082)	(0.00129)	(0.00103)
Black	0.04973	–0.33866	0.23325
	(0.32588)	(0.51692)	(0.38848)
Other	0.05858	0.01374	0.13791
	(0.23068)	(0.33674)	(0.31279)
Time	0.01788	0.00962	0.02840
	(0.02718)	(0.03791)	(0.04038)
If wife's education = Col: difference from HSSC coefficient			
College	–0.10977	–1.37862	0.02034
	(0.73665)	(1.47832)	(0.74712)
Age	0.00814	0.07228	0.00741
	(0.04200)	(0.08709)	(0.04204)
Age-squared	–0.00020	–0.00088	–0.00026
	(0.00059)	(0.00125)	(0.00058)
Black	0.03798	–0.08864	0.00338
	(0.14239)	(0.28785)	(0.13757)

Table B.4—continued

	All Wives Who Worked	Wives Who Worked Part-Time	Wives Who Worked Full-Time
Other	0.06682	–0.05200	–0.08697
	(0.16520)	(0.33665)	(0.16010)
Time	0.00464	–0.00229	0.00181
	(0.01312)	(0.02281)	(0.01369)
Husband variables			
Less than high school	–0.27063	0.35448	–0.63234
	(0.40076)	(0.67533)	(0.43766)
College	–0.00967	0.07382	–0.03243
	(0.08215)	(0.13308)	(0.09199)
Age	0.00421	0.00680	0.00510
	(0.02262)	(0.03954)	(0.02509)
Age-squared	0.00008	–0.00003	0.00009
	(0.00031)	(0.00056)	(0.00034)
Black	0.07852	0.01808	0.05358
	(0.09614)	(0.16097)	(0.10542)
Other	0.18768	0.18498	0.15655
	(0.10083)	(0.17032)	(0.10908)
Time × Less than high school	0.06650	–0.17565	0.20345
	(0.15882)	(0.29160)	(0.16005)
Time × College	–0.01133	–0.01780	0.00165
	(0.01228)	(0.02027)	(0.01353)
Children variables			
Children younger than 18	0.01522	0.02124	0.00922
	(0.02395)	(0.03624)	(0.02953)
Children younger than 6	–0.07070	0.00690	–0.10122
	(0.04753)	(0.07834)	(0.05310)
Number of children	–0.03252	–0.15489	0.01566
	(0.06429)	(0.10837)	(0.07138)

Table B.4—continued

	All Wives Who Worked	Wives Who Worked Part-Time	Wives Who Worked Full-Time
Moved variables			
Within past year			
Same county	0.04207	–0.02652	0.07929
	(0.05568)	(0.09251)	(0.06005)
Different county	–0.01257	–0.13404	0.06502
	(0.10832)	(0.17271)	(0.12238)
Different state	0.08664	0.10618	–0.02366
	(0.10516)	(0.16550)	(0.12095)
Different division	–0.11772	–0.24789	–0.13630
	(0.10766)	(0.16095)	(0.13268)
Different region	–0.01165	–0.11442	–0.06680
	(0.06206)	(0.09356)	(0.07603)
From abroad	0.26656 *	0.21893	0.25946
	(0.10431)	(0.14421)	(0.15617)
Within past 5 years			
Non-movers	0.08161	–0.16030	0.16609
	(0.16863)	(0.31351)	(0.16699)
Same county	0.13240	–0.09062	0.23120
	(0.15111)	(0.26924)	(0.15384)
Different county	–0.07150	–0.35202	0.09229
	(0.24549)	(0.45029)	(0.24480)
Different state	0.16913	0.05694	0.20415
	(0.18020)	(0.28781)	(0.20423)
Different division	0.02360	0.01538	0.14118
	(0.23094)	(0.34385)	(0.28760)
Different region	–0.05312	–0.11546	–0.04409
	(0.11314)	(0.17381)	(0.13495)
From abroad	0.21077	0.02837	0.17383
	(0.17718)	(0.29964)	(0.18861)
Location			
Urban	0.07476	0.11358	0.02177
	(0.04817)	(0.08067)	(0.05193)
Rural	0.25432 **	0.30379 **	0.23879 **
	(0.04992)	(0.07930)	(0.05715)

Table B.4—continued

	All Wives Who Worked	Wives Who Worked Part-Time	Wives Who Worked Full-Time
Unknown	0.05792	0.09435	0.04035
	(0.04704)	(0.07595)	(0.05257)
Northeast	–0.03612	–0.08068	0.07497
	(0.06884)	(0.10618)	(0.08187)
North Central/Midwest	–0.09304	–0.07657	–0.13134 *
	(0.05526)	(0.08912)	(0.06188)
West	0.03331	0.01691	0.01134
	(0.04059)	(0.06638)	(0.04508)
Economic conditions			
Δ in unemployment rate	–0.06927	–0.02128	–0.06677
	(0.11470)	(0.18271)	(0.13054)
Federal employee status			
Federal employee	–0.28325 **	–0.11035	–0.28541 **
	(0.05565)	(0.10394)	(0.05649)
R squared	0.104327	0.048656	0.133939
F value	288.50	47.37	239.66

[a]Coefficients for military families are the *difference between* the military coefficient and the corresponding civilian coefficient.

* = significant at .05; ** = significant at .01.

Table B.5

Wife's Hourly Wage Regressions

	All Wives Who Worked	Wives Who Worked Full-Time	Wives Who Worked Part-Time	All Wives Who Worked: Heckman Model
Civilian families				
	1.50851 **	1.45815 **	1.51715 **	1.58466 **
	(0.01896)	(0.02158)	(0.03612)	(0.02164)
Civilian wife variables				
If wife's education = High school or some college (HSSC)				
Age	0.03367 **	0.04004 **	0.02152 **	0.03383 **
	(0.00125)	(0.00140)	(0.00237)	(0.00099)
Age-squared	–0.00035 **	–0.00043 **	–0.00020 **	–0.00035 **
	(0.00001)	(0.00002)	(0.00003)	(0.00001)
Black	–0.01547	–0.03225 *	–0.00020	–0.03183 **
	(0.01493)	(0.01477)	(0.03431)	(0.00607)
Other	–0.01758	–0.04228 **	0.02017	–0.03550 **
	(0.00965)	(0.00983)	(0.02073)	(0.00788)
Time	0.00309 **	–0.00006	0.00692 **	0.00372 **
	(0.00042)	(0.00044)	(0.00087)	(0.00039)
If wife's education < HSSC: difference from HSSC coefficient				
Less than high school	0.06088	0.18734 **	–0.12604	0.02196
	(0.04499)	(0.05936)	(0.07366)	(0.04528)
Age	–0.01321 **	–0.02041 **	–0.00176	–0.01545 **
	(0.00219)	(0.00291)	(0.00357)	(0.00220)
Age-squared	0.00016 **	0.00024 **	0.00003	0.00019 **
	(0.00003)	(0.00003)	(0.00004)	(0.00003)
Black	0.01403	0.05491 **	–0.01109	0.02881
	(0.01722)	(0.01856)	(0.03413)	(0.01734)
Other	0.03729	0.02163	0.06908	0.04244 *
	(0.01931)	(0.02035)	(0.03907)	(0.01943)
Time	–0.00665 **	–0.00878 **	–0.00453 *	–0.00956 **
	(0.00121)	(0.00134)	(0.00230)	(0.00112)

Table B.5—continued

	All Wives Who Worked	Wives Who Worked Full-Time	Wives Who Worked Part-Time	All Wives Who Worked: Heckman Model
If wife's education = Col: difference from HSSC coefficient				
College	0.06026	–0.04518	0.34805 **	0.15815 **
	(0.03478)	(0.03855)	(0.06911)	(0.03481)
Age	0.01222 **	0.01615 **	–0.00110	0.01095 **
	(0.00166)	(0.00188)	(0.00319)	(0.00167)
Age-squared	–0.00013 **	–0.00017 **	–0.00000	–0.00013 **
	(0.00002)	(0.00002)	(0.00004)	(0.00002)
Black	0.04938 **	0.03785 **	0.08419 *	0.04616 **
	(0.01178)	(0.01096)	(0.03411)	(0.01187)
Other	0.00168	0.00842	–0.02167	–0.00075
	(0.01231)	(0.01211)	(0.02884)	(0.01238)
Time	0.00466 **	0.00574 **	0.00323	0.00555 **
	(0.00080)	(0.00082)	(0.00171)	(0.00071)
Husband variables				
Less than high school	–0.07467 **	–0.08626 **	–0.06169 **	
	(0.00695)	(0.00738)	(0.01383)	
College	0.08029 **	0.07503 **	0.10546 **	
	(0.00536)	(0.00568)	(0.01070)	
Age	0.00469 **	0.00425 **	0.00678 **	
	(0.00109)	(0.00118)	(0.00213)	
Age-squared	–0.00004 **	–0.00005 **	–0.00005 *	
	(0.00001)	(0.00001)	(0.00002)	
Black	–0.00744	–0.00722	–0.02935	
	(0.01422)	(0.01411)	(0.03235)	
Other	–0.02750 **	–0.02022 *	–0.06117 **	
	(0.00888)	(0.00905)	(0.01907)	
Time × Less than high school	–0.00525 **	–0.00479 **	–0.00504 *	
	(0.00112)	(0.00118)	(0.00229)	
Time × College	0.00206 **	0.00262 **	0.00170	
	(0.00077)	(0.00081)	(0.00158)	

Table B.5—continued

	All Wives Who Worked	Wives Who Worked Full-Time	Wives Who Worked Part-Time	All Wives Who Worked: Heckman Model
Children variables				
Children younger than 18	–0.03091 **	–0.02791 **	–0.02017 **	
	(0.00174)	(0.00200)	(0.00314)	
Children younger than 6	0.09755 **	0.07934 **	0.14639 **	
	(0.00340)	(0.00368)	(0.00665)	
Number of children	–0.01091 **	–0.00721	0.00790	
	(0.00413)	(0.00441)	(0.00851)	
Moved variables				
Within past year				
Same county	–0.04652 **	–0.04187 **	–0.05402 **	–0.04510 **
	(0.00444)	(0.00463)	(0.00914)	(0.00448)
Different county	–0.02715 **	–0.00402	–0.04909 **	–0.01984 **
	(0.00748)	(0.00807)	(0.01452)	(0.00754)
Different state	–0.02500 *	–0.01872	–0.01063	–0.01798
	(0.01196)	(0.01343)	(0.02197)	(0.01205)
Different division	–0.02699	–0.01023	–0.00950	–0.01491
	(0.01793)	(0.02141)	(0.03074)	(0.01806)
Different region	–0.03230 **	–0.03390 *	0.00481	–0.02354 *
	(0.01165)	(0.01397)	(0.01992)	(0.01174)
From abroad	–0.11450 **	–0.05241	–0.09960 *	–0.14028 **
Within past 5 years				
Non-movers	0.00307	–0.00131	0.01174	0.00291
	(0.00555)	(0.00582)	(0.01128)	(0.00559)
Same county	–0.01258	–0.01964 *	–0.00265	–0.00962
	(0.00829)	(0.00857)	(0.01726)	(0.00835)
Different county	–0.00542	0.00925	–0.03026	0.00736
	(0.01338)	(0.01390)	(0.02762)	(0.01349)
Different state	–0.03580	–0.04167	–0.01122	–0.02182
	(0.02453)	(0.02565)	(0.05005)	(0.02473)
Different division	–0.04718	–0.09192 **	0.03558	–0.04095
	(0.03024)	(0.03359)	(0.05620)	(0.03047)

Table B.5—continued

	All Wives Who Worked	Wives Who Worked Full-Time	Wives Who Worked Part-Time	All Wives Who Worked: Heckman Model
Different region	–0.08476 **	–0.08330 **	–0.06526	–0.07481 **
	(0.01994)	(0.02222)	(0.03691)	(0.02010)
From abroad	–0.21669 **	–0.18579 **	–0.22075 **	–0.23359 **
	(0.03537)	(0.04124)	(0.06216)	(0.03574)
Location				
Urban	–0.02658 **	–0.03384 **	–0.02021 **	–0.02885 **
	(0.00325)	(0.00335)	(0.00684)	(0.00328)
Rural	–0.19390 **	–0.21092 **	–0.16156 **	–0.20633 **
	(0.00293)	(0.00310)	(0.00589)	(0.00295)
Unknown	–0.09594 **	–0.10168 **	–0.08559 **	–0.09890 **
	(0.00323)	(0.00339)	(0.00655)	(0.00326)
Northeast	0.10967 **	0.12593 **	0.10043 **	0.11320 **
	(0.00322)	(0.00334)	(0.00670)	(0.00324)
North Central/Midwest	0.00684 *	0.01929 **	–0.00029	0.01030 **
	(0.00309)	(0.00320)	(0.00646)	(0.00313)
West	0.04865 **	0.05487 **	0.05348 **	0.04856 **
	(0.00321)	(0.00336)	(0.00659)	(0.00322)
Economic conditions				
Δ in unemployment rate	0.02166 **	0.02002 *	0.01595	0.02561 **
	(0.00799)	(0.00840)	(0.01613)	(0.00805)
Federal employee status				
Federal employee	0.26714 **	0.26345 **	0.16714 **	0.27199 **
	(0.00735)	(0.00675)	(0.02222)	(0.00740)
Selectivity (λ)				0.06051 **
				(0.00835)
Selectivity (rho)				0.11128
				—
Selectivity (sigma)				0.54379
				—

Table B.5—continued

	All Wives Who Worked	Wives Who Worked Full-Time	Wives Who Worked Part-Time	All Wives Who Worked: Heckman Model
Military families[a]				
Intercept	–0.65586 **	–0.11325	–0.89955 **	–0.38961 **
	(0.15854)	(0.21012)	(0.25691)	(0.13582)
Military wife variables				
If wife's education = High school or some college (HSSC)				
Age	0.01805	–0.00839	0.03780	0.00770
	(0.01202)	(0.01366)	(0.02369)	(0.00796)
Age-squared	–0.00022	0.00008	–0.00045	–0.00005
	(0.00017)	(0.00019)	(0.00035)	(0.00012)
Black	0.04354	0.01580	0.08294	0.04231
	(0.05505)	(0.06510)	(0.09780)	(0.03156)
Other	–0.06816	–0.06330	–0.07993	–0.02492
	(0.04240)	(0.05110)	(0.07325)	(0.03897)
Time	0.00625 *	0.00248	0.00912	0.00587 *
	(0.00303)	(0.00353)	(0.00540)	(0.00288)
If wife's education < HSSC: difference from HSSC coefficient				
Less than high school	0.17043	–0.10355	0.09762	0.21793
	(0.46988)	(0.73268)	(0.73703)	(0.47240)
Age	–0.00458	–0.00430	0.00853	–0.00497
	(0.02992)	(0.04330)	(0.04824)	(0.03007)
Age-squared	–0.00002	0.00003	–0.00022	–0.00002
	(0.00045)	(0.00062)	(0.00073)	(0.00045)
Black	–0.09046	–0.00327	–0.15691	–0.11251
	(0.17045)	(0.21455)	(0.29605)	(0.17089)
Other	0.08955	0.16741	0.02805	0.09395
	(0.11943)	(0.17576)	(0.18525)	(0.11941)
Time	0.03283 *	0.04764 *	0.02116	0.03157 *
	(0.01455)	(0.02239)	(0.02186)	(0.01461)

Table B.5—continued

	All Wives Who Worked	Wives Who Worked Full-Time	Wives Who Worked Part-Time	All Wives Who Worked: Heckman Model
If wife's education = Col: difference from HSSC coefficient				
College	–0.46403	–0.11783	–1.96777 *	–0.38941
	(0.37073)	(0.40742)	(0.79661)	(0.37025)
Age	0.03128	0.01467	0.11672 *	0.02791
	(0.02112)	(0.02293)	(0.04698)	(0.02111)
Age-squared	–0.00053	–0.00034	–0.00169 *	–0.00049
	(0.00029)	(0.00032)	(0.00067)	(0.00029)
Black	–0.01310	–0.00208	–0.05399	–0.02784
	(0.07177)	(0.07487)	(0.15538)	(0.07210)
Other	–0.03079	–0.02164	–0.06902	–0.02197
	(0.08429)	(0.08767)	(0.18697)	(0.08405)
Time	–0.00311	–0.00254	–0.00341	–0.00436
	(0.00666)	(0.00746)	(0.01248)	(0.00589)
Husband variables				
Less than high school	0.10203	0.10146	0.11016	
	(0.23956)	(0.28818)	(0.42722)	
College	–0.01151	–0.00728	–0.00446	
	(0.04204)	(0.05064)	(0.07304)	
Age	0.00877	0.00377	0.00913	
	(0.01166)	(0.01381)	(0.02195)	
Age-squared	–0.00009	0.00004	–0.00019	
	(0.00016)	(0.00018)	(0.00031)	
Black	–0.00791	0.00435	–0.00574	
	(0.04906)	(0.05727)	(0.08866)	
Other	0.14640 **	0.09974	0.20546 *	
	(0.05145)	(0.05936)	(0.09403)	
Time × Less than high school	–0.00931	0.01247	–0.03689	
	(0.08860)	(0.09604)	(0.17868)	
Time × College	–0.00161	–0.00438	–0.00080	
	(0.00627)	(0.00739)	(0.01114)	

Table B.5—continued

	All Wives Who Worked	Wives Who Worked Full-Time	Wives Who Worked Part-Time	All Wives Who Worked: Heckman Model
Children variables				
Children younger than 18	–0.00900	0.00205	–0.01534	
	(0.01249)	(0.01642)	(0.02028)	
Children younger than 6	–0.02521	–0.05943 *	–0.01061	
	(0.02460)	(0.02941)	(0.04362)	
Number of children	–0.04831	–0.00310	–0.13458 *	
	(0.03326)	(0.03937)	(0.06062)	
Moved variables				
Within past year				
Same county	0.00761	0.03529	–0.01694	0.01371
	(0.02877)	(0.03298)	(0.05179)	(0.02886)
Different county	–0.08469	–0.02542	–0.14284	–0.09998
	(0.05575)	(0.06668)	(0.09663)	(0.05610)
Different state	0.04744	0.03314	0.06096	0.04959
	(0.05516)	(0.06815)	(0.09276)	(0.05541)
Different division	–0.07014	–0.14714 *	–0.03851	–0.07228
	(0.05714)	(0.07451)	(0.09182)	(0.05748)
Different region	–0.01343	–0.09031 *	0.00950	–0.02115
	(0.03209)	(0.04197)	(0.05174)	(0.03213)
From abroad	0.05041	–0.02405	0.06717	0.05857
	(0.05453)	(0.08552)	(0.08072)	(0.05496)
Within past 5 years				
Non-movers	0.05202	0.07956	0.03875	0.06489
	(0.08712)	(0.09060)	(0.18230)	(0.08769)
Same county	0.03827	0.15468	–0.14068	0.05001
	(0.07675)	(0.08348)	(0.14846)	(0.07721)
Different county	–0.04550	–0.02709	–0.06278	–0.02836
	(0.12548)	(0.13281)	(0.25328)	(0.12626)
Different state	0.08560	0.12486	0.02245	0.07891
	(0.09436)	(0.11089)	(0.16635)	(0.09505)
Different division	–0.00087	0.13432	–0.12611	–0.01006
	(0.12000)	(0.15605)	(0.19380)	(0.12076)
Different region	–0.08995	–0.00787	–0.17033	–0.09942
	(0.05841)	(0.07561)	(0.09518)	(0.05878)

Table B.5—continued

	All Wives Who Worked	Wives Who Worked Full-Time	Wives Who Worked Part-Time	All Wives Who Worked: Heckman Model
From abroad	0.15326	0.12094	0.18330	0.16248
	(0.09334)	(0.10469)	(0.17384)	(0.09404)
Location				
Urban	0.07368 **	0.03764	0.11358 *	0.07598 **
	(0.02484)	(0.02862)	(0.04492)	(0.02493)
Rural	0.13505 **	0.13924 **	0.12023 **	0.14157 **
	(0.02579)	(0.03140)	(0.04422)	(0.02589)
Unknown	0.03424	0.02245	0.05273	0.03326
	(0.02438)	(0.02900)	(0.04247)	(0.02445)
Northeast	–0.02397	0.03022	–0.05219	–0.02372
	(0.03557)	(0.04492)	(0.05897)	(0.03577)
North Central/Midwest	–0.05631 *	–0.13178 **	0.02478	–0.05952 *
	(0.02867)	(0.03412)	(0.04994)	(0.02881)
West	–0.00732	–0.01004	–0.00602	–0.00420
	(0.02104)	(0.02489)	(0.03712)	(0.02108)
Economic conditions				
Δ in unemployment rate	–0.03944	–0.01060	–0.02409	–0.04975
	(0.05968)	(0.07247)	(0.10242)	(0.06000)
Federal employee status				
Federal employee	–0.22651 **	–0.21749 **	–0.15549 **	–0.23075 **
	(0.02815)	(0.03091)	(0.05603)	(0.02825)
R squared	0.200236	0.272162	0.126960	
F value	590.70	562.07	124.36	
Wald chi-sq (152)				66753.72

[a]Coefficients for military families are the *difference between* the military coefficient and the corresponding civilian coefficient.

* = significant at .05; ** = significant at .01.

Table B.6

Selection Equation for Hourly Wage Model: Probability Wife Worked in the Year

Variable	Probability Wife Worked in Year
Civilian families	
	–0.1733349
	(0.0384839)
Civilian wife variables	
If wife's education = High school or some college (HSSC)	
Age	0.1005665
	(0.0023263)
Age-squared	–0.0014514
	(0.0000247)
Black	0.0422034
	(0.0340271)
Other	–0.0838307
	(0.0182234)
Time	0.0141063
	(0.0009045)
If wife's education < HSSC: difference from HSSC coefficient	
Less than high school	–0.4477296
	(0.0693222)
Age	–0.0068558
	(0.0032249)
Age-squared	0.0001347
	(0.0000358)
Black	
Other	
Time	–0.0053582
	(0.0021304)

Table B.6—continued

Variable	Probability Wife Worked in Year
If wife's education = Col: difference from HSSC coefficient	
College	0.0482368
	(0.0749253)
Age	0.0107107
	(0.0033176)
Age-squared	–0.0000814
	(0.000035)
Black	
Other	
Time	0.0023682
	(0.0018532)
Husband variables	
Less than high school	–0.0198849
	(0.0133185)
College	–0.0872351
	(0.0114871)
Age	–0.0121942
	(0.0020948)
Age-squared	–0.0000175
	(0.0000211)
Black	0.1765227
	(0.0333785)
Other	–0.0355113
	(0.019257)
Time × Less than high school	–0.0157727
	(0.00218)
Time × College	–0.0063625
	(0.0016727)

Table B.6—continued

Variable	Probability Wife Worked in Year
Children variables	
Children younger than 18	–0.174084
	(0.0034135)
Children younger than 6	–0.4146158
	(0.0075148)
Number of children	0.0471629
	(0.0090297)
Moved variables	
Within past year	
Same county	0.0192983
	(0.009918)
Different county	–0.0121393
	(0.0168224)
Different state	–0.0664528
	(0.0259061)
Different division	–0.1129816
	(0.0380271)
Different region	–0.1784593
	(0.0243046)
From abroad	–1.000573
	(0.0386118)
Within past 5 years	
Non-movers	0.0053767
	(0.0115869)
Same county	0.0398471
	(0.0187211)
Different county	0.0129834
	(0.0309276)
Different state	–0.0474962
	(0.055549)
Different division	–0.1370574
	(0.0652518)

Table B.6—continued

Variable	Probability Wife Worked in Year
Different region	–0.1347397
	(0.0427504)
From abroad	–0.6769876
	(0.0583384)
Location	
Urban	–0.0512316
	(0.0067891)
Rural	0.0333963
	(0.0062305)
Unknown	0.0393159
	(0.0069268)
Northeast	0.036112
	(0.0067705)
North Central/Midwest	0.1346808
	(0.0066377)
West	0.0459834
	(0.0066647)
Economic conditions	
Δ in unemployment rate	0.0440295
	(0.0169512)
Military families[a]	
Intercept	0.8959689
	(0.3020482)
Military wife variables	
If wife's education = High school or some college (HSSC)	
Age	–0.1142498
	(0.0248223)
Age-squared	0.0013112
	(0.0003446)

Table B.6—continued

Variable	Probability Wife Worked in Year
Black	0.0033058
	(0.1198741)
Other	–0.034129
	(0.0734137)
Time	–0.0137536
	(0.0064528)
If wife's education < HSSC: difference from HSSC coefficient	
Less than high school	0.6130798
	(0.7999747)
Age	–0.0159586
	(0.0484024)
Age-squared	0.0000346
	(0.0007045)
Black	
Other	
Time	–0.0418052
	(0.0232418)
If wife's education = Col: difference from HSSC coefficient	
College	1.380219
	(0.9031203)
Age	–0.0711124
	(0.0504292)
Age-squared	0.0009421
	(0.000693)

Table B.6—continued

Variable	Probability Wife Worked in Year
Black	
Other	
Time	–0.0217304
	(0.0142803)
Husband variables	
Less than high school	0.060519
	(0.4393429)
College	–0.0993788
	(0.0853405)
Age	0.0401284
	(0.023531)
Age-squared	–0.0002453
	(0.0003145)
Black	0.0477876
	(0.1115067)
Other	0.1669406
	(0.104383)
Time × Less than high school	–0.0394274
	(0.146062)
Time × College	–0.0062458
	(0.0126895)
Children variables	
Children younger than 18	0.0235218
	(0.0232714)
Children younger than 6	–0.2350403
	(0.0503461)
Number of children	0.1039982
	(0.0701619)

Table B.6—continued

Variable	Probability Wife Worked in Year
Moved variables	
Within past year	
Same county	0.0730083
	(0.0616016)
Different county	0.0596926
	(0.1150199)
Different state	0.0285896
	(0.1132995)
Different division	0.2470894
	(0.1253808)
Different region	0.2212073
	(0.0674848)
From abroad	0.8315449
	(0.0994509)
Within past 5 years	
Non-movers	0.4833412
	(0.2175191)
Same county	0.0470243
	(0.1638376)
Different county	–0.2157427
	(0.2473048)
Different state	0.1554973
	(0.1963729)
Different division	–0.1358723
	(0.2297421)
Different region	0.1849695
	(0.1226576)
From abroad	0.4842618
	(0.1756605)

Table B.6—continued

Variable	Probability Wife Worked in Year
Location	
Urban	0.1349243
	(0.0518255)
Rural	0.0241513
	(0.0537163)
Unknown	–0.0196038
	(0.0500463)
Northeast	0.0510762
	(0.0720882)
North Central/Midwest	0.0053878
	(0.0592664)
West	0.1705526
	(0.0436587)
Economic conditions	
Δ in unemployment rate	–0.0284316
	(0.1223174)

[a]Coefficients for military families are the *difference between* the military coefficient and the corresponding civilian coefficient.

Appendix C

PRESENCE OF CHILDREN UNDER AGE 6 AMONG FAMILIES WITH CHILDREN

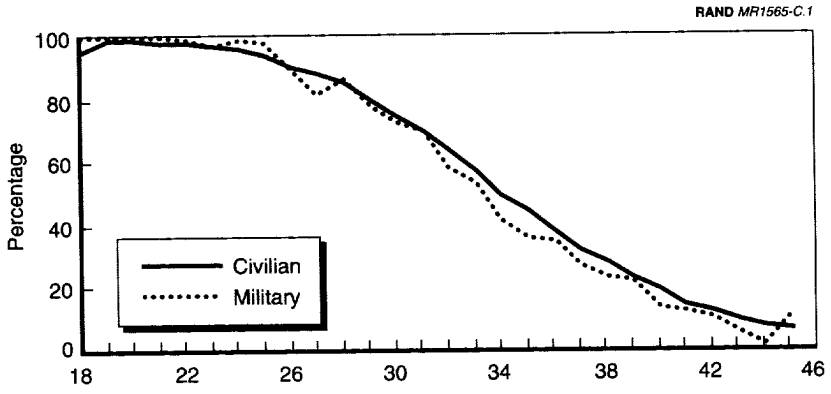

Figure C.1—Among Families with Children and Wife with High School Education, Percentage with Children Under Age 6

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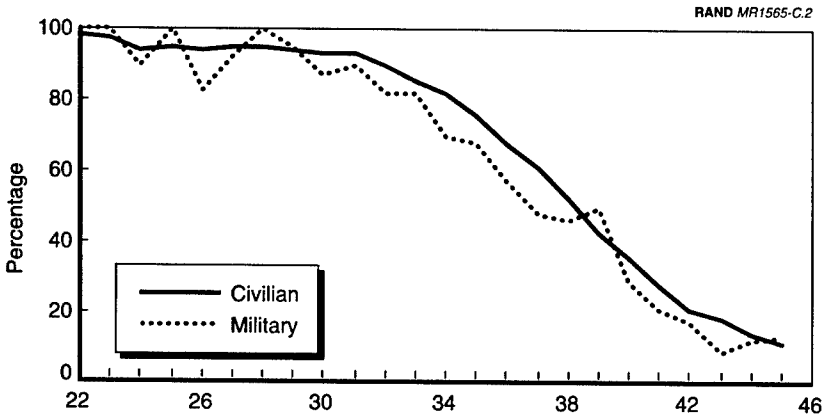

Figure C.2—Among Families with Children and Wife with College Education, Percentage with Children Under Age 6

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